

Taylor&Mulder

Property and Casualty Consulting Actuaries

MISSOURI PETROLEUM STORAGE TANK INSURANCE FUND

LOSS AND LOSS ADJUSTMENT EXPENSE RESERVE ANALYSIS AS OF JUNE 30, 2022

AUGUST 2022

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August 31, 2022

Ms. Kelley J. Ogletree
Executive Director
Petroleum Storage Tank Insurance Fund
P.O. Box 836
Jefferson City, MO 65102

RE: ACTUARIAL ANALYSIS OF THE PETROLEUM STORAGE TANK INSURANCE FUND AS OF JUNE 30, 2022

Dear Ms. Ogletree:
Enclosed is the actuarial review of the loss and allocated loss adjustment expense reserves of the Missouri Petroleum Storage Tank Insurance Fund as of June 30, 2022.

The first section in the text of our report is the Executive Summary section. This section presents our Conclusions and Recommendations. It also describes the Purpose and Scope of our report, explains the Distribution and Use of our report, and provides the Conditions and Limitations underlying our work. This section of our report includes the Background section which provides information about the PSTIF program history.

The next section of the text of our report is the Actuarial Analysis section that describes the sources of data, our overall methodology, the selection of factors and specific methodologies and considerations by line of business. It also describes the selection of ultimate losses, and loss reserve discounting. The Exhibits section of our report follows the text of the report and includes all of our analyses.

Please feel free to call if you have any questions regarding any aspect of our report.

Sincerely,

Daniel W. Lupton, FCAS, MAAA, CSPA, MBA

E. Toni Mulder, FCAS, MAAA, FCA

Enclosures

Missouri Petroleum Storage Tank Insurance Fund
Loss and Loss Adjustment Expense Reserve
Analysis as of June 30, 2022

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Executive Summary

Purpose and Scope

Taylor & Mulder, Incorporated (“T&M”) was requested by the Board of Trustees ("Board") of the Missouri Petroleum Storage Tank Insurance Fund (“PSTIF”) to conduct an actuarial review of the PSTIF's loss and loss adjustment expenses reserves as of June 30, 2022. This report contains our summary, conclusions and recommendations along with a description of the analysis underlying our conclusions.

Specifically, T&M was asked by the Board to conduct an actuarial analysis to include within its scope the following tasks:

- A review and opinion on the adequacy of current claim reserves of PSTIF,
- A projection of PSTIF's future claim liabilities, including an estimate on future claim severity and frequency, separately for each claim type, and
- An analysis of PSTIF's large loss claims, including:
    - Information on the typical lag time between the time when a claim is opened and the time it is identified as a “large loss claim,”
    - The history of losses and reserving practices on “large loss claims,” and
    - Information on how “large loss claims” are expected to impact the PSTIF’s future finances.
- An estimation of the claims impact on PSTIF's financial position of the December 31, 2030 sunset provision in the enabling legislation.

This report presents the results of those analyses. This report was prepared by Daniel W. Lupton, FCAS, MAAA, CSPA, MBA, Vice President and Consulting Actuary, and E. Toni Mulder, FCAS, MAAA, FCA, President and Principal and Consulting Actuary.

In accordance with the requirements of the Actuarial Standards of Practice in making statements of actuarial opinion, we provide the following statements:

> *I, Daniel W. Lupton, am an Officer and Consulting Actuary in the firm of Taylor & Mulder, Inc. I am a Fellow of the Casualty Actuarial Society in good standing and qualified to issue a Statement of Actuarial Opinion. I am also a Member of the American Academy of Actuaries.*

Background

In the early 1980s, the federal government recognized that an underground storage tank ("UST") could present an environmental hazard. At the time, many underground petroleum tanks were fabricated of unprotected steel which was subject to corrosion and deterioration leading to contamination of the surrounding soil and, perhaps more importantly, nearby groundwater. By 1984, legislation was in place to permit the Environmental Protection Agency ("EPA") to set standards for tank design, installation, and protection to minimize the danger of future releases of petroleum or other hazardous chemicals stored underground. Over the years since, there have been additional EPA standards and regulations for tanks to further strengthen measures to protect the environment and groundwater. Included in these rules are requirements for tank owners/operators to have minimum levels of financial resources to deal with leaks and spills that might occur. In Missouri, this financial requirement is generally met by the purchase of insurance, either commercially or through the PSTIF.

Missouri responded to the federal actions and established the Underground Storage Tank Insurance Fund in 1989, which preceded the creation of the PSTIF, to assist owners/operators of underground storage tanks in meeting federal financial responsibility rules. In 1992, the PSTIF began offering insurance to underground tank owners/operators to pay for the costs associated with petroleum leaks and spills in the state of Missouri. This coverage is provided on a claims-made basis.

The initial legislation enabling the PSTIF had a sunset date of December 31, 1998. Additional legislative actions have moved the date to 2003, 2010, 2020, 2025, and finally to the current December 31, 2030 sunset date. Consequently, all projections performed by T&M in this report

assume a December 31, 2030 sunset date. PSTIF will be responsible for the cost of claims reported to it as of December 31, 2030. Claims reported after that date will not be handled by PSTIF without further legislation extending the sunset date.

In 1995, the PSTIF's mandate was expanded to include cleanup of petroleum contamination from certain uninsured leaks and spills. Uninsured risks included operations that had been closed prior to December 31, 1997. Therefore, the PSTIF pays for remediation costs associated with uninsured aboveground and underground storage tanks that were taken out of use by December 31, 1997, even when the tanks were never covered by the PSTIF. In some cases, petroleum releases went undetected (for example, at old gas stations) for many years. When soil or water tests reveal petroleum contamination as a result of such disused sites and a party is identified who is willing to assume responsibility for directing remediation efforts, PSTIF will pay for the remediation associated with that leak or spill subject to certain criteria and after a deductible.

In 1996, PSTIF was opened to aboveground storage tank ("AST") owners/operators to voluntarily purchase protection. Then in 2008, the Missouri legislature mandated that AST owners/operators demonstrate financial responsibility for liability arising from any leak or spill beginning in 2011. This increased the number of ASTs covered by PSTIF.

Extended reporting endorsements permit the reporting of claims for a period of up to five (5) years after the tank is retired from service or sold. PSTIF began offering extended reporting endorsements for AST owners/operators taking tanks out of service in 2002. Beginning in 2004, UST owners/operators have been able to buy an extended reporting endorsement. However, no

extended reporting endorsements will cover claims reported after December 31, 2030, the sunset date in the most recent legislation.

In contrast to many such state funds, which often act more as government grant programs than insurance programs, the PSTIF requires tanks owners/operators to complete an application and be approved to receive a coverage document. The coverage document is either the Underground Storage Tank Participation Agreement or the Aboveground Storage Tank Pollution Liability Participation Agreement depending on the type of tank provided coverage. The application and approval process allows PSTIF to enforce compliance with ever-developing standards for tanks and the associated piping.

In the event that a release is discovered after the retroactive date of the PSTIF coverage (the date at which coverage initially attaches), PSTIF will pay for the first $1,000,000 of the costs per event, subject to a $2,000,000 annual aggregate. Each event carries a $10,000 deductible.

PSTIF storage tank claims are categorized into the following groups:

- Insurance UST – Release: Underground storage tank petroleum releases from insured tanks;
- Insurance UST – Closure: Underground storage tank petroleum releases from insured tanks that were discovered when the tank was being removed from an insured site;
- Insurance UST – Other: Underground storage tank petroleum releases from insured tanks that do not fit into either of the above categories;

- Remedial UST: Cleanup costs associated with remediation of uninsured underground storage tank sites that were taken out of use prior to the deadline set by the Missouri Legislature;
- Insurance AST: Aboveground storage tank petroleum spills from insured tanks, and
- Remedial AST: Cleanup costs associated with remediation of uninsured aboveground storage tank sites that were taken out of use prior to the deadline set by the Missouri Legislature.

Terms Defined

ALAE Allocated Loss Adjustment Expense ("ALAE") is the amount of money spent on a particular claim to the benefit of an insured, the amount that can be allocated to a single claim. These expenses include the attorneys' fees, expert witnesses, collection and protection of material germane to the claim, etc. For the PSTIF, ALAE does not include contracted fund administration expenses.

Claims-Made Claims-made coverage is a type of insurance coverage that provides protection for the insured on claims reported during the coverage period given that the incident giving rise to the claim occurred on or after the Retroactive Date ("retro date"). The retro date is usually the date the first claims-made coverage was issued to the insured. Coverage provided by PSTIF attaches on a claims-made basis.

Claims-made coverage may be contrasted to occurrence coverage, which responds to claims brought against the insured given that the incident giving rise to the claim occurred during the coverage period. Both private passenger automobile and homeowners' policies are written on an occurrence basis.

Claim Frequency Claim frequency is the average number of claims per insured exposure. For PSTIF, an insured exposure is one tank insured for one year. For example, if 250 claims are reported in a year with 10,000 insured tanks, the claim frequency (average number of claims per insured exposure) is 250 / 10,000 insured tanks = 0.025 claim per tank.

IBNR Incurred But Not Reported ("IBNR"), strictly speaking, is a reserve derived by actuaries for claims not as yet reported to the insurer for which premium has been earned and for which the insurer is responsible. Under this narrow definition of IBNR, claims-made coverages would not have IBNR as all claims are known at the end of the coverage period (or soon thereafter). However, the term IBNR for claims-made coverage is used in a broad sense and includes changes in incurred amounts (i.e., paid plus case reserves) for known claims.

Claim estimates done by a claim department or fund administrator must rely on information about the claim at a point in time. The available information may be lacking in important details that will greatly impact the ultimate cost of the claim. Actuaries review the data from the aggregated claims data by year as it

changes over time, from the first report of the claim to settlement. From these reviews, the actuary can calculate factors to apply to current case data to estimate the ultimate costs of a body of claims. The difference between estimated ultimate values and current case incurred is IBNR.

Because coverage provided by the PSTIF is claims-made rather than occurrence, all references to IBNR in this report will typically refer exclusively to development on known claims unless otherwise noted.

LAE Loss Adjustment Expense ("LAE") is the sum of Allocated Loss Adjustment Expense ("ALAE") and Unallocated Loss Adjustment Expenses ("ULAE") and represents the total costs of handling and defending claims.

LDF A Loss Development Factor ("LDF") is calculated by an actuary from historical claim data and applied to current paid or incurred values to estimate ultimate claim costs for an insurer.

Pure Premium Pure Premium is the average cost of insurance per covered exposure. For PSTIF, a covered exposure is one tank insured for one year. An example might help clarify the concept. If two tanks are covered and one has a claim for $100, then the pure premium (average loss per covered exposure) is $100 / 2 covered tanks = $50

Severity Severity is the average size of claim for a given collection of claims. For instance, if the total cost for three claims is $45,000, the claim severity (average size of claim) is $45,000 / 3 claims = $15,000 severity.

ULAE Unallocated Loss Adjustment Expense ("ULAE") represents the expenses. For the Fund, ULAE represents costs associated with fund administration.

Conclusions

Loss and Allocated Loss Adjustment Expense Reserve Adequacy

T&M analyzed loss and loss adjustment expense reserves for the six broad categories of claims enumerated above. The following table shows the results of our analysis for these categories:

Missouri Petroleum Storage Tank Insurance Fund
Undiscounted Unpaid Loss & ALAE as of June 30, 2022

Claim Type	Case Outstanding	IBNR	Unpaid ALAE	Unpaid Loss & ALAE
Insurance UST - Release	7,703,349	6,211,434	83,382	13,998,165
Insurance UST - Closure	10,112,622	6,193,175	97,709	16,403,506
Insurance UST - Other	6,146,369	7,638,633	82,604	13,867,606
Remedial UST	16,273,926	3,625,898	119,246	20,019,070
Insurance AST	14,929,959	7,565,206	134,798	22,629,964
Remedial AST	2,120,678	163,808	13,689	2,298,175
Total	**57,286,904**	**31,398,154**	**531,429**	**89,216,486**

Projected investment income for this report was 1.13%, based on historical investment yields earned by the State. Investment income amounts to approximately 6.8% of undiscounted losses. Improvements in investment yield will increase this amount.

The following table shows the results of our analysis taking into account the effect of investment income:

Missouri Petroleum Storage Tank Insurance Fund
Discounted Unpaid Loss & ALAE as of June 30, 2022

Claim Type	Undiscounted Unpaid Loss & ALAE	Discount	Discounted Unpaid Loss & ALAE
Insurance UST – Release	13,998,165	997,612	13,000,554
Insurance UST – Closure	16,403,506	950,712	15,452,794
Insurance UST – Other	13,867,606	883,542	12,984,064
Remedial UST	20,019,070	1,383,586	18,635,484
Insurance AST	22,629,964	1,650,133	20,979,830
Remedial AST	2,298,175	160,417	2,137,758
Total	**89,216,486**	**6,026,001**	**83,190,485**

Although Remedial UST claims made up the largest category of case reserves, insured events (particularly those of type "Insurance UST – Other", "Insurance UST – Closure", and "Insurance AST") carry most of the IBNR. In the future, as remedial claims are closed and future remedial claims decrease in number (proportional to the decreasing number of remedial sites), we expect Remedial UST to continue to decrease as a portion of unpaid loss and LAE compared to other claim types.

As of June 30, 2022, the PSTIF held $90,320,354 in reserves for claims payable. This is $1,103,868 redundant when compared with the undiscounted unpaid loss and ALAE, and $7,129,869 redundant when compared with the discounted unpaid loss and ALAE.

Note that the reserves in the above table do not include a provision for claims not yet reported to the PSTIF as of June 30, 2022.

Unallocated Loss Adjustment Expense Reserve

If PSTIF were a commercial insurance company, statutory insurance accounting rules would require that all estimated future costs for claims administration for open claims be held as reserves. T&M has estimated those additional costs for Williams & Company Consulting, Inc. ("Williams"), the PSTIF fund administrator, to handle all open claims until final settlement at $17,702,969 on an undiscounted basis and $16,507,247 on a discounted basis. This amount is not included in the tables above. This amount reflects the extended time horizon over which

PSTIF claims are paid. The following chart shows the total liability including unallocated loss adjustment expense:

Missouri Petroleum Storage Tank Insurance Fund Discounted Unpaid Loss & LAE as of June 30, 2022			
	Undiscounted Reserve	**Discount**	**Discounted Reserve**
Loss & Allocated Loss Adjustment Expense	89,216,486	6,026,001	83,190,485
Unallocated Loss Adjustment Expense	17,702,969	1,195,722	16,507,247
Total	106,919,455	7,221,723	99,697,731

Loss and Loss Adjustment Expense Reserves (Including Unallocated) Needed at Sunset Date

If the sunset date of the PSTIF is not changed by the legislature, the ability for filing new claims will sunset on December 31, 2030. In order to estimate the reserve position of PSTIF as of December 31, 2030, T&M made several assumptions. The first assumption was that there would not be any increase in the rate at which releases are reported as the sunset date approaches, see Exhibits E-16 and E-20.

T&M also assumed that the releases reported from June 30, 2022 through December 31, 2030 will have the same average frequency and severity as the historical data, adjusted for trends in the data. Payment patterns by type of release were applied to the data to produce the needed reserves. The following table summarizes the anticipated reserve required to run off all claims reported as of the anticipated fund sunset date:

Missouri Petroleum Storage Tank Insurance Fund Unpaid Loss & LAE on December 31, 2030 Assuming No Increase in the Rate of Reported Releases Reserve Study as of June 30, 2022		
	Undiscounted	**Discounted**
Unpaid Claim Expense	78,148,716	72,870,272
Unpaid Allocated Loss Adjustment Expense	468,292	436,662
Unpaid Unallocated Loss Adjustment Expense	15,599,745	14,546,082
Total	**94,216,753**	**87,853,016**

As discussed above, these unpaid claim amounts do not take into account the possibility of increased claim reporting in the period leading up to the fund sunset, nor do the above reserves include amounts required for overhead expenses such as salaries of fund personnel or the PSTIF Board's annual contributions to support the Department of Natural Resources' regulatory program. Discounted losses are calculated using an investment yield of 1.13% which is consistent with current financial documents prepared by PSTIF.

Reserving Practices

Claims handling and underwriting is provided by Williams under a contract with the PSTIF. Much of the Williams' staff has a technical background in engineering or geology and significant experience in handling claims for the PSTIF.

Williams' claim philosophy entails providing a swift response to reports of covered releases in order to minimize further contamination and the associated increased liability. A swift response also enables the claim department to secure pertinent physical evidence (such as damaged piping, valves, etc.) before it is discarded. Discussions during the preparation of this report

indicate that the claims philosophy has not changed, although there has been a concerted effort to decrease the time between the receipt of a claim and its closure.

Claims handling is somewhat different than that of an insurance company in that the PSTIF was created to protect the environment and the citizens of Missouri from the impact of petroleum releases. Therefore, the claims handling effort is focused on reasonable and necessary costs for effective response to reach the cleanup standards required by the MoDNR. The number of PSTIF lawsuits appears relatively modest when compared to commercial general liability insurers. Those claims involving lawsuits have defense counsel assigned as would be expected.

Claims are handled by having the contractor or the consultant hired by the owner/operator submit a proposed work plan and estimated costs to the PSTIF. The planned costs may be challenged by the claims adjustor and proposed costs must be deemed "reasonable" to be approved. Once the project is started, invoices are submitted to the PSTIF for reimbursement.

Remedial claims present a unique situation that would not be encountered in a commercial insurance company. Often the site has been abandoned completely or converted to a different use. Remedial claims generally move forward only when a party is willing to step forward and participate in the remediation process, which usually includes paying the first $10,000 of cleanup costs.

Adjustors are also charged with establishing appropriate case reserves for the PSTIF. In insurance companies, aggregate incurred values (paid plus case reserves) tend to increase over time as more information regarding claims becomes known. Overall, PSTIF incurred values produce low loss development factors, which indicates that the case incurred values are a reasonable indicator of the ultimate cost of PSTIF claims, particularly for the UST Closure and UST Remedial claims.

When the proposed work plan for the release site has been completed and all monitoring results are within required limits, the claimant's environmental consultant informs the Missouri DNR that the impact of the release meets the DNR's remediation standards. Once the DNR concurs with the consultant's conclusions, they will then issue a "No Further Action" ("NFA") letter. Some activities must be completed after an NFA is issued, and once all costs have been submitted and reimbursed, the claim is closed. Claims not actively being managed by the owner/operator (i.e., cleanup activities have been abandoned or monitoring is not in place) are placed in suspense. Essentially, this means that the claim is not progressing toward the issuance of an NFA letter by the Missouri DNR. These stalled claims are removed from the suspense list and handled in a normal manner if someone again takes an interest in completing the cleanup at a future date.

Underwriting

Williams also provides underwriting services as part of its fund administration function. An application for coverage with the PSTIF must be filled out by the tank owner/operator along with a method of securing payment of the $10,000 deductible. In addition, the tank

owners/operators must demonstrate that the tanks and associated piping under their control are not currently leaking and are in compliance with state regulations.

Coverage attaches on a claims-made basis which means that claims must be reported during the coverage period in order to be covered. Remedial claims are covered as reported without the requirement that coverage was in effect at the time of the release.

Data required on the application for insurance with PSTIF for UST installations include such items as the installation date, the tank capacity, the type of product contained, type of tank (e.g., single walled, double walled, fiberglass, etc.), type of piping, and details on overfill and leak protection. The PSTIF application for AST's requires similar documentation requirements along with information on the secondary containment system in place.

Applications for coverage with the PSTIF are reviewed by Williams' personnel and deficiencies are noted. Coverage documents are only issued if the application information is found to be satisfactory.

Projection of Future Loss and Loss Adjustment Expense, Claim Severity, and Frequency

T&M was asked to estimate costs for claims to be reported in 2022 and subsequent years, i.e., claims that have not yet been reported to PSTIF. To perform this projection, T&M applied several methodologies to estimate future loss and loss adjustment expenses based on claim frequency and claim severity for each claim category. For purposes of our initial projection of reserves needed as of December 31, 2030, we assumed that claims reporting would proceed as

normal with no increase in reporting due to the impending sunset date. In addition, T&M created scenarios that might represent an expected influx of claims should the program not have its termination date extended.

Projection of Frequency and Severity

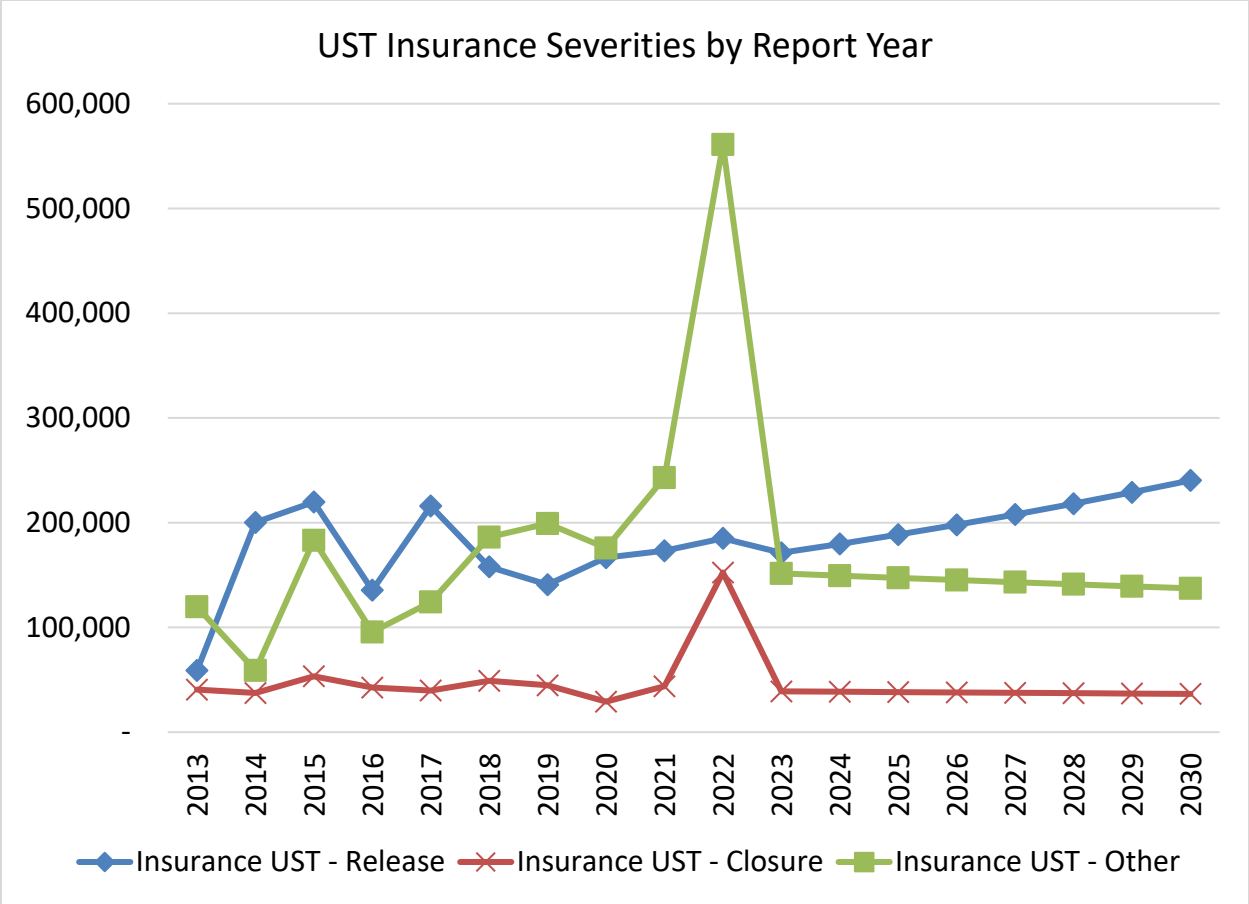
As part of projecting the financial condition of the PSTIF through December 31, 2030, we estimated (1) future claim severity and (2) future claims reporting for each claim category.

Analysis of coverage in-force indicates a modest negative trend in the number of UST and AST tanks with in-force coverage. In the case of UST coverage, we have projected modest declines in the future based on this recent trend. In the case of in-force AST coverage, the PSTIF previously provided a likely maximum penetration of 80% to 85% of ASTs. Consistent with that estimate and with previous years' analyses, we have assumed that the number of covered ASTs will approach 1,002 asymptotically over several years[1].

The current analysis of average claim severities this year suggests that Insurance UST – Release, Insurance UST – Other, and Insurance AST claims will increase over time, while Insurance UST – Closure and remedial claims of all types will tend to stay at about the same average severity level over time.

The following four charts show claim severities over time. The first chart displays the Insurance UST claim severities over time from Report Year 2013 to Report Year 2030:

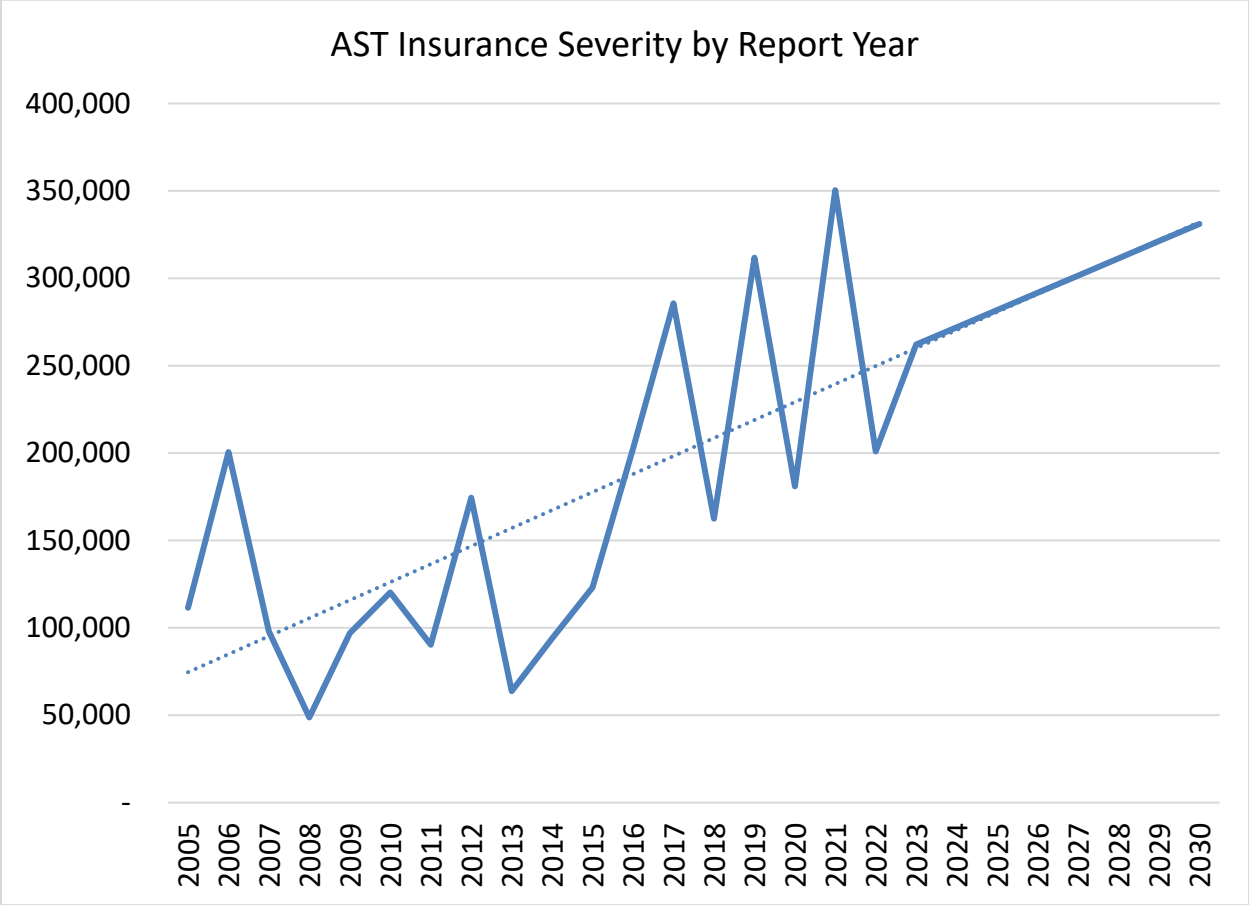
[1] Calculated as 85% × 1,179 sites with ASTs as of June 30, 2022.



Note that everywhere they are discussed in this report, Report Years are based on the fiscal year in which a claim was opened. For example, a claim that was opened between July 2021 and June 2022 will have a Report Year of 2022 to match the fiscal year ending June 30, 2022.

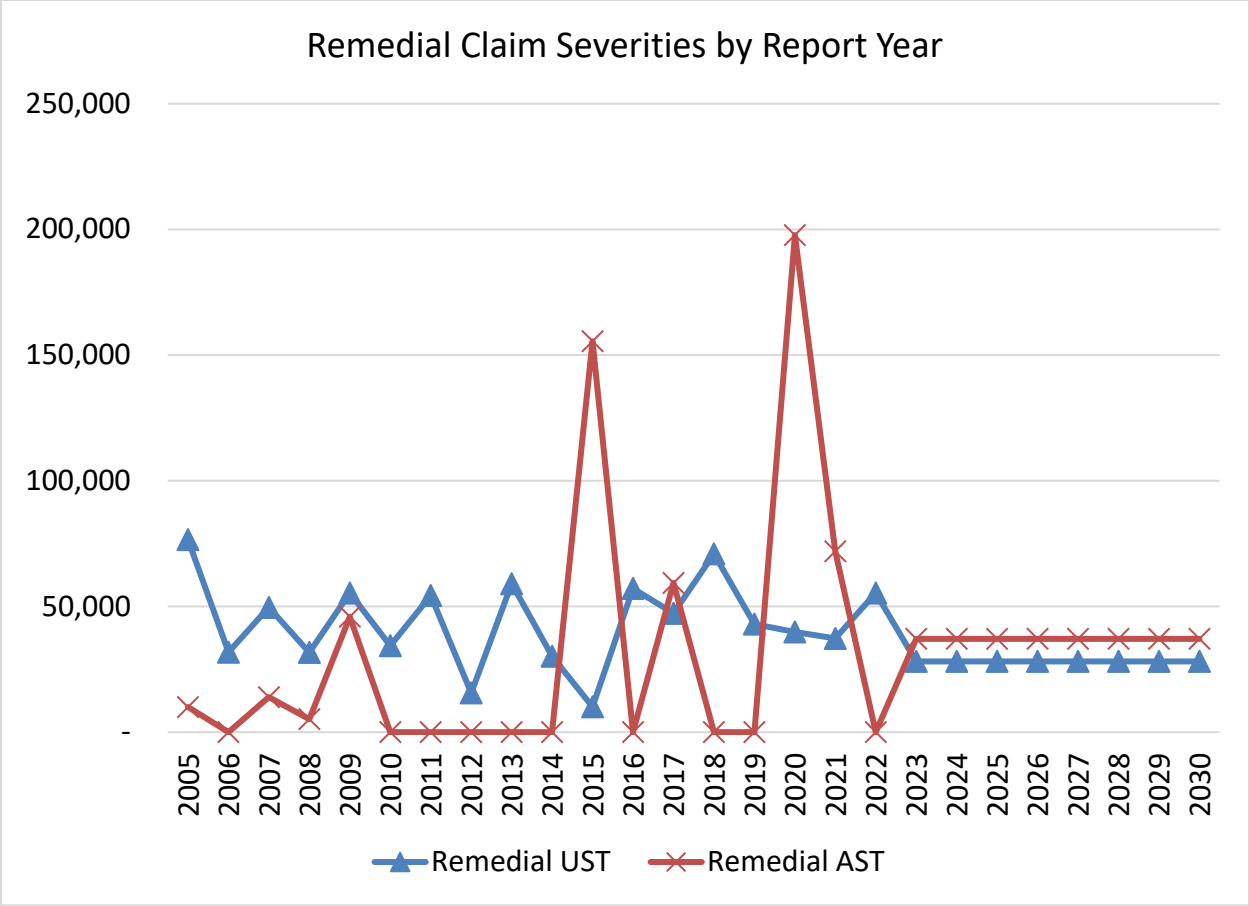
As this graph shows, the average severity for the "Release" and "Other" claim types have generally fluctuated between $50,000 and $250,000, while the "Closure" claim type has shown very stable average severity over time. This stability may be attributed to the higher number of "Closure" claims compared to other Insurance UST claim types, which creates lower volatility. The spike in 2022 for Closure and Other release types is due to a lower-than-average number of reported claims that year; however, the 2022 year is currently immature, and the expected severity may decrease as the claims mature.

The following chart shows the average claim severity from Report Year 2005 to Report Year 2030 for Insurance AST claims:



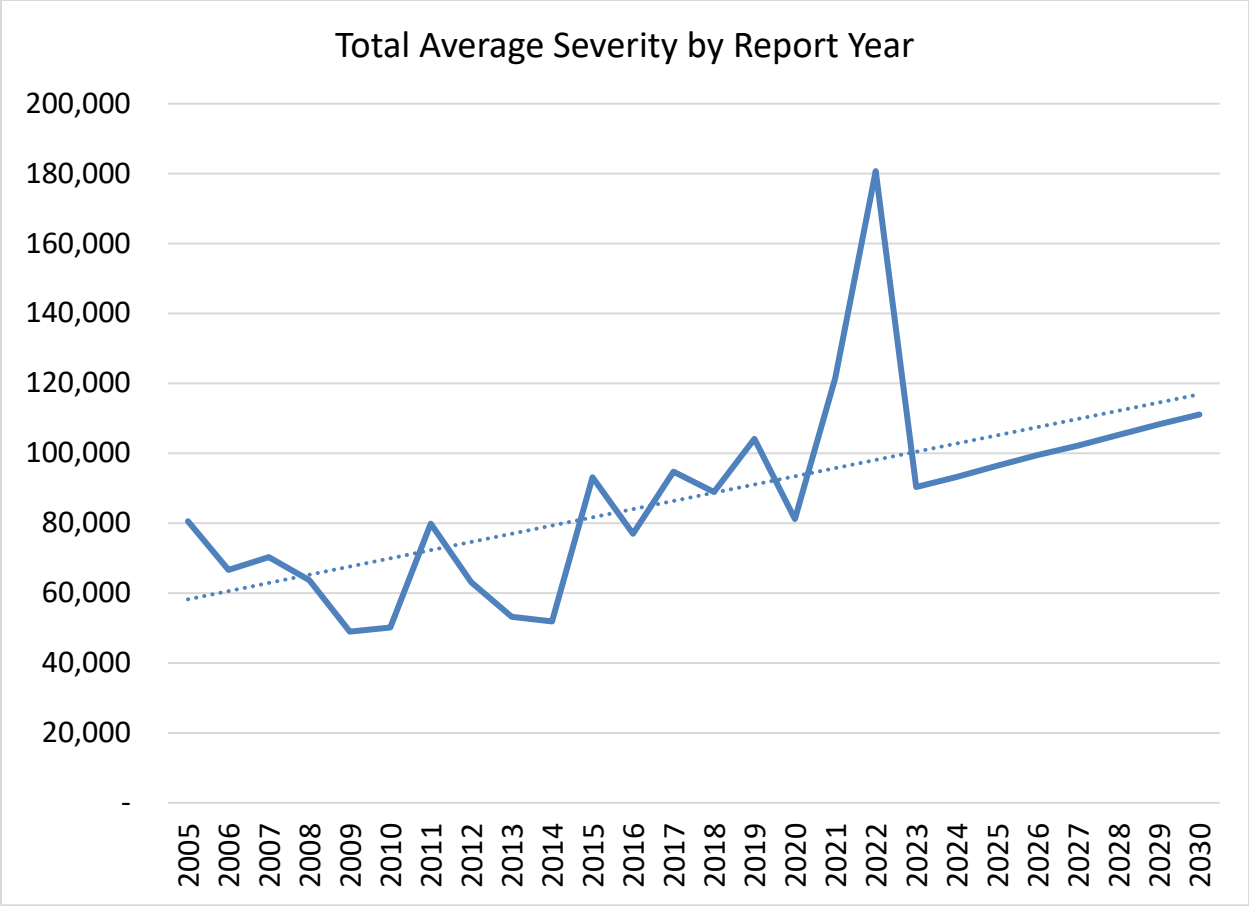
As this chart shows, the average severity of Insurance AST claims has shown significant volatility over time. Recent years have shown continued upward trend, leading us to project continued increases in average severity over time.

Finally, the following chart shows the average severity of Remedial UST and AST claims from Report Year 2005 to Report Year 2030:



As this chart shows, the remedial UST claim severities have remained relatively stable over time. Remedial AST frequencies show a similar pattern on an individual claim basis but show greater volatility in this chart because claim volumes are much lower, and a small number of large claims can cause severity to appear to have spiked, when this is really a result of normal variation in claim severities.

Finally, the following chart shows the combined total average severity over time:



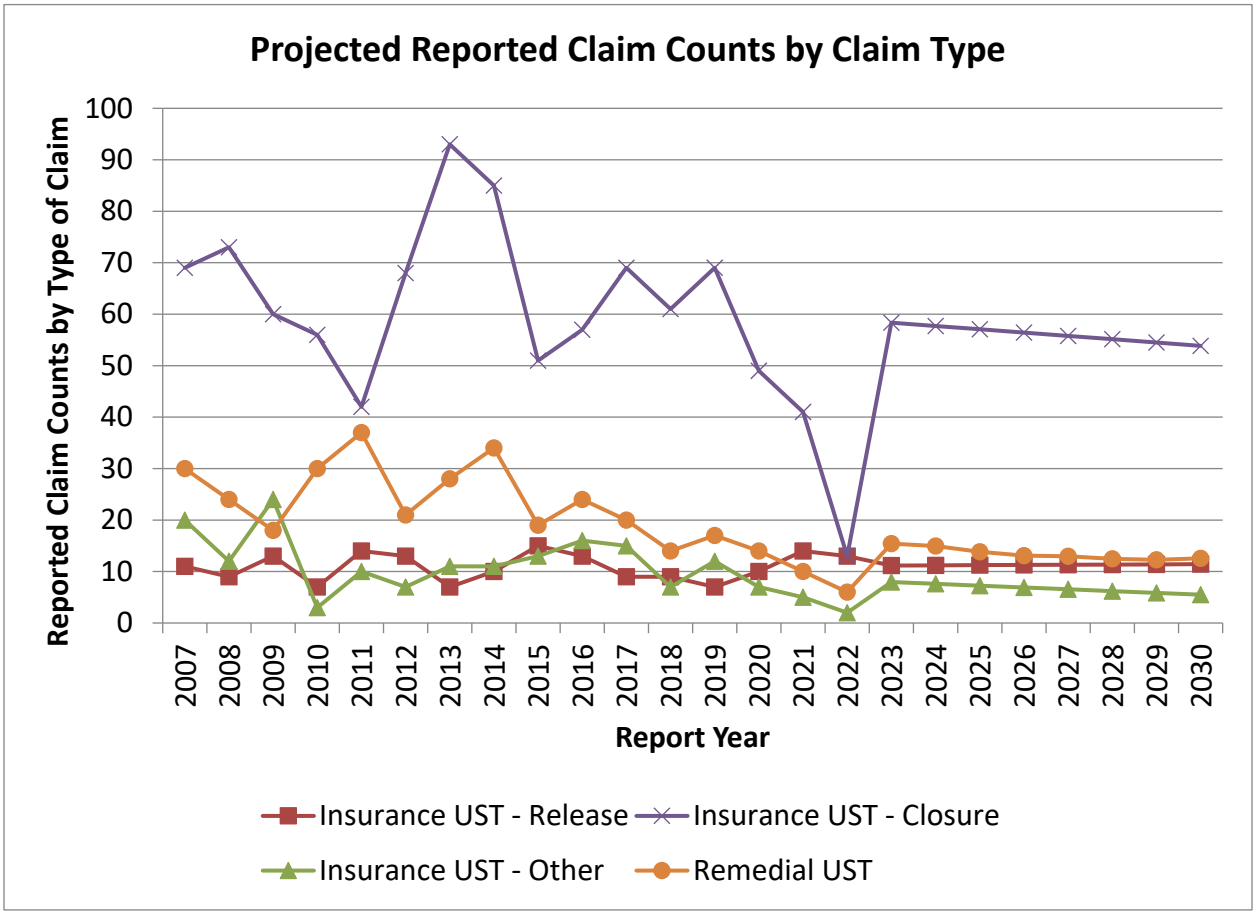
As this graph shows, the overall average severity has increased modestly since the mid-2000s. This is likely caused by two trends. First, increasing DNR requirements over time will have the effect of increasing the cost to remediate, all else remaining equal. In addition, we observe a changing mix of claim types over time. As claim types with higher average severities make up a larger percentage of total claims and claim types with lower average severities make up a smaller share, the average severity has drifted upward over time. Future Report Year projections reflect an anticipation of relative stability in future severity.

Finally, note that the spike in 2022 is driven by lower-than-expected claim counts during that period on a combined basis. Because of the immaturity of the year, ultimate loss projections remained at levels consistent with the recent past. This, combined with the decrease in claim

counts, led to a spike in severity. Subsequent analyses may see that spike reduce considerably as claims mature, either as incident reports are reclassified as normal insurance claims or as more mature claims development information supports a decrease in the ultimate losses for the 2022 year.

In addition, we performed an analysis of claim frequencies over time. To project future reported claims counts, T&M used a variety of regression techniques. The results from those analyses led us to project relatively flat claim count patterns in the future for most claim types and modest declines in claim counts for Insurance UST – Closure and Insurance UST – Release claim types.

The following chart displays historical and projected claim counts by UST claim type:

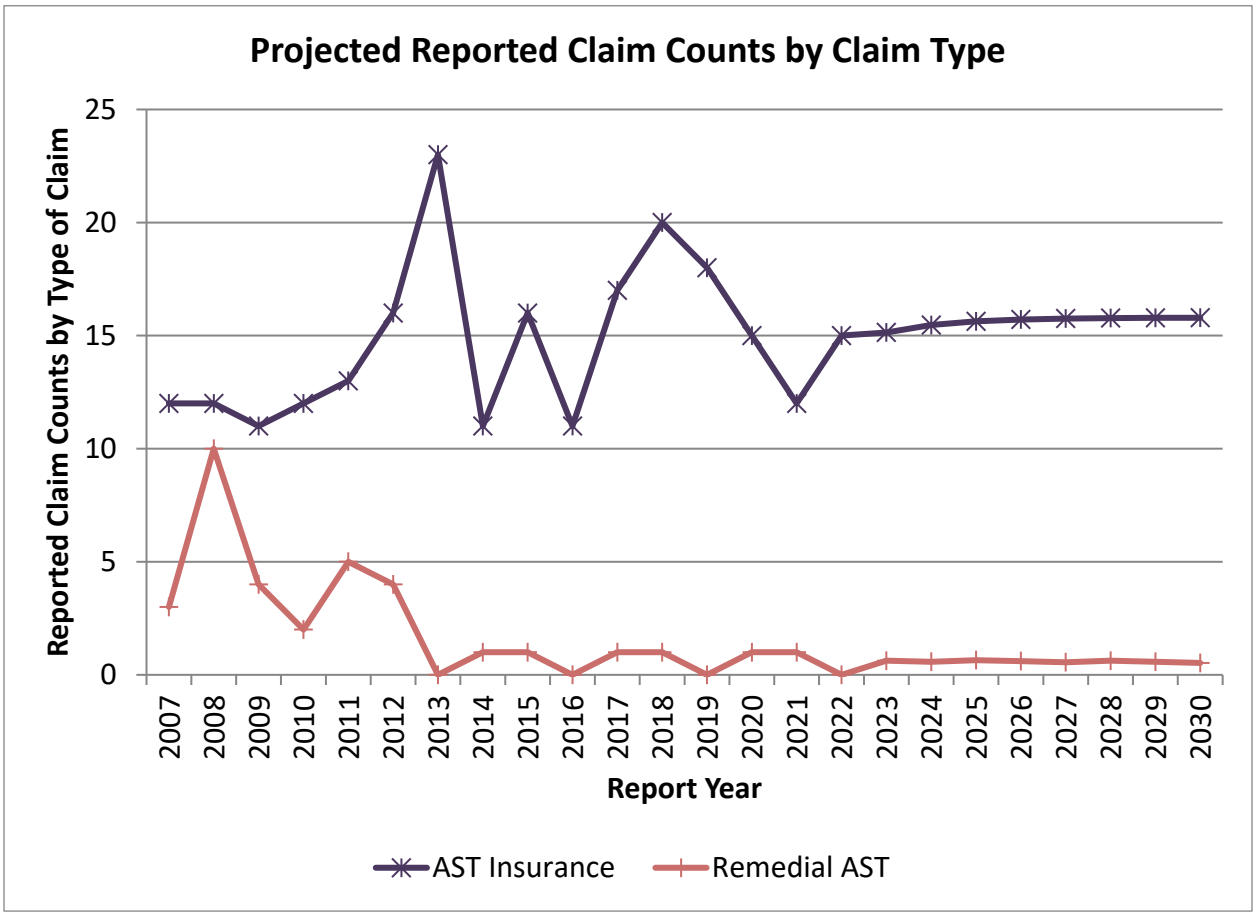


Note that for consistency, the 2030 year shows the projected overall claim frequency for a full report year; however, if the fund sunsets at December 31, 2030 then the total number of anticipated claims in the 2030 report year would be half the number projected on this chart.

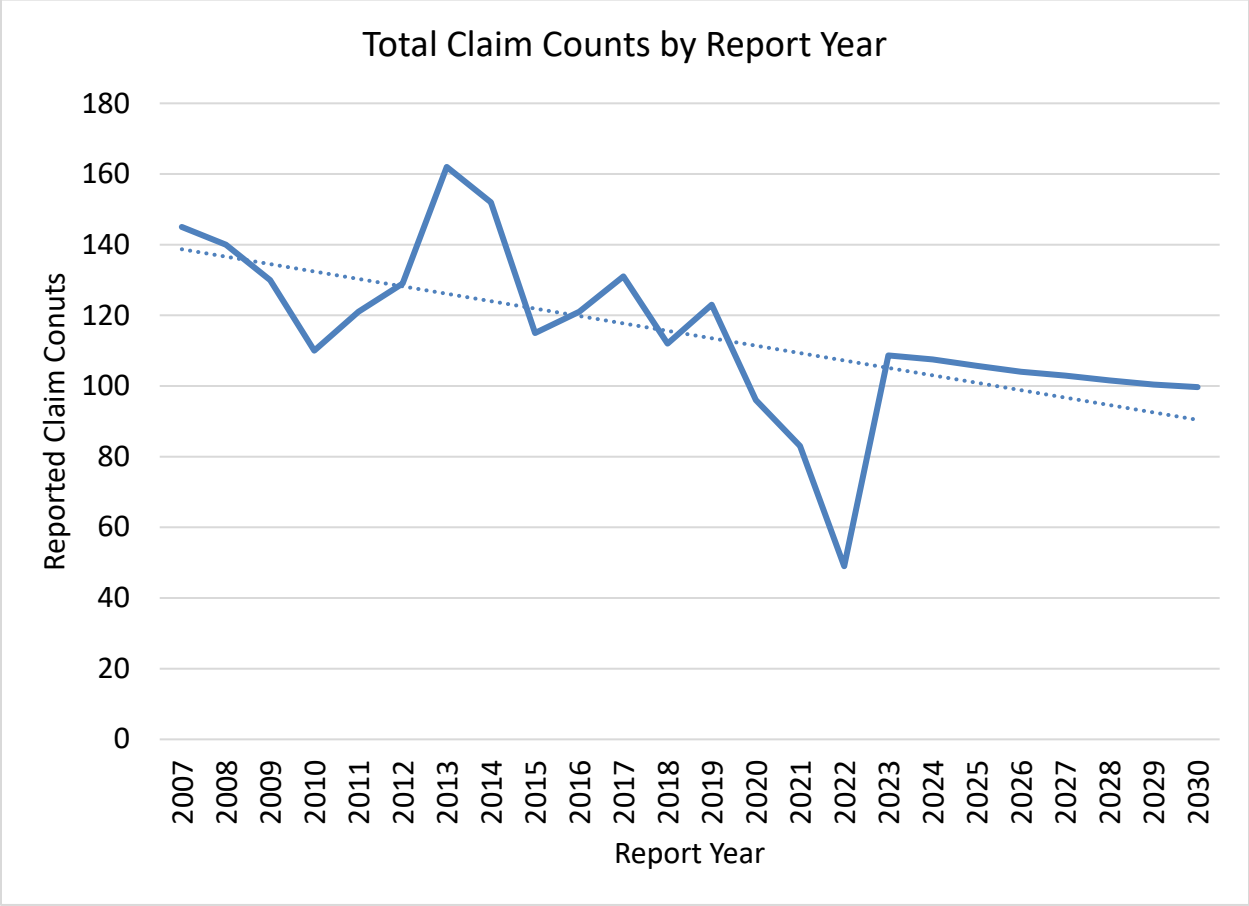
It will be noted that the number of Closure and Other claims declined markedly in 2022 as compared to recent years. The number of claim reports in 2022 was equivalent to recent years, but many of those claim reports are categorized as “incident reports” rather than Closure or Other claims at present. It is possible that in future years, some of those incidents will be reclassified as claims, which would reduce the magnitude of the dip in claim counts in 2022.

As this chart shows, the "Insurance UST – Closure" claim type has dominated since 2003, but generally slopes modestly downward over time. The second most common claim type, "Remedial UST," appears to also be in slow decline. All other claim types appear to have leveled off by 2020, with the exception of some expected annual volatility, and therefore we anticipate that these claims will continue at roughly the same frequency levels in the future.

Similarly, the following chart shows the historical and projected claim counts by AST claim types:



The following chart shows the total claim counts by Report Year:



This chart shows some modest if volatile decline in reported claim counts through 2022. As noted above, the 2022 year is an outlier in terms of recent years; however, this may change in subsequent years if incident reports are reclassified as insurance claims. Projected future years continue under the assumption of a modest decline in total claim counts.

Projection of Revenues

The PSTIF has two primary sources of revenue: transport load fees ("TLF") and participation fees, which is the actual premium charged for the insured risks. Transport load fees are charged to transporters of petroleum on a per load basis. TLF make up the majority of the PSTIF

revenues. From 2001 until September 1, 2008, TLF fees were $40 for 8,000 gallons of petroleum product transported. On September 1, 2008, the TLF fee was reduced to $20 per 8,000 gallons of petroleum product transported. On January 1, 2019, the TLF was increased to $28 per 8,000 gallons. Enabling legislation grants PSTIF the authority to raise and lower the TLF as needed, within statutory limits. The overall maximum TLF is set at $60 per 8,000 gallons of petroleum product by legislation.

Participation fees are charged to tank owners/operators on the basis of the categories of tanks insured. For USTs, the participation fee is $100 per tank for double-walled tanks, and $125 per tank for single-walled. For ASTs, the fee is $100 per tank for tanks with a capacity less than 25,000 gallons and $200 per tank of 25,000 gallons or more. A "new tank" charge of $100 per tank is a one-time fee in addition to the participation fee for both UST and AST tanks, payable during the first year of insurance with PSTIF.

T&M has relied on projections of future revenues provided by the PSTIF. We have reviewed these projected revenues for reasonableness and found they are reasonable based on current economic conditions. However, T&M has not attempted to quantify the potential impact on PSTIF revenue of the COVID-19 pandemic, its effects on fuel consumption or the economy broadly, or the move to more fuel-efficient vehicles and to alternative vehicle fuels. In addition, no attempt has been made to quantify the impact of significant changes in fuel prices on the TLF revenue stream.

Projection of Future Cash Flows

T&M was asked to project cash flows to the PSTIF to the current proposed sunset date of December 31, 2030, or 7.5 fiscal years. To perform this analysis, we combined projections of future claim frequencies and severities, projections of future revenues, and projections of future expenses associated with the PSTIF's fund administrator.

Future paid losses were simulated based on assumed probability distributions for frequency, severity, and claim payment speeds. Simulated claim payment speeds also affected the payout speeds of unpaid claims from historical Report Years.

The following page shows the projected cash flows from July 1, 2022 through December 31, 2030 assuming no influx of claims due to the sunset of the PSTIF program:

Financial Projections Based on PSTIF 2023 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(I)	(J)	(K)	(L)
	Annual Revenues Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	Transport load fees	15,800,000	15,750,000	15,700,000	15,650,000	15,600,000	15,550,000	15,500,000	7,725,000	117,275,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	457,100	441,816	418,729	404,542	389,394	372,337	355,108	166,847	3,005,874
(6)	Total Revenues	17,384,100	17,318,816	17,245,729	17,181,542	17,116,394	17,049,337	16,982,108	8,455,347	128,733,374
	Administrative Expenses Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176	-	-	-	-	-	-	-	73,176
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	422,122	360,438	478,406	439,902	374,875	497,032	456,742	3,486,850
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,809,171	6,850,587	7,076,454	7,150,759	7,203,564	7,448,694	4,007,065	53,365,448
	Claim Payments Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(24)	Average / Expected	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	5,596,463	88,538,768
(25)	Cash balance @ 6/30/22	40,443,141								
	Funds Available at Fiscal Year-End:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	
(26)	Average / Expected	37,738,613	36,357,749	35,228,125	33,677,214	32,209,771	30,628,509	28,420,479	27,272,298	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

This chart shows projected revenues, projected expenses, projected claim payments, and projected cash available at year-end. For example, the actuarial central estimate is that $13.3 million in losses will be paid in fiscal year 2023 in addition to $6.7 million in administrative expenses. Revenues are expected to total $17.4 million, leaving a cash balance of $37.8 million at fiscal year-end 2023. As of December 31, 2030, the actuarial central estimate suggests that there will be a remaining cash balance of approximately $27.3 million. This balance assumes that the fund will sunset on December 31, 2030 and that there will be no increase in claim reporting as the fund sunset date approaches.

Exhibit E-20 expands on this chart by showing claim payments and the resulting cash balances at various confidence levels. For example, there is a 50% probability that the cash balance as of December 31, 2030 will be greater than or equal to $30.5 million.

Exhibits E-21 through E-23 show alternative cash flow scenarios based on the possibility that claim reporting will increase if the fund approaches the sunset date. In these cases, we projected increases in remedial, closure, and "other" claims leading to increased claim costs in the first half of the 2030 fiscal year (at which time the fund is projected to be sunset). The financial results of these scenarios are also shown graphically in Exhibits E-17 through E-19.

The "Low Scenario" shown in Exhibit E-21 represents a small amount of claims ramp-up, while the "High Scenario" shown in Exhibit E-23 represents a large amount of claims ramp-up. Note that the payment streams under these scenarios are not markedly different since they reflect an anticipated ramp-up in claim reporting close to the fund sunset date, so there is not

much time for claims to be paid out. Where these scenarios will primarily differ is in the final liability as of the sunset date, for which the ramp-up scenarios will have a higher remaining unpaid liability.

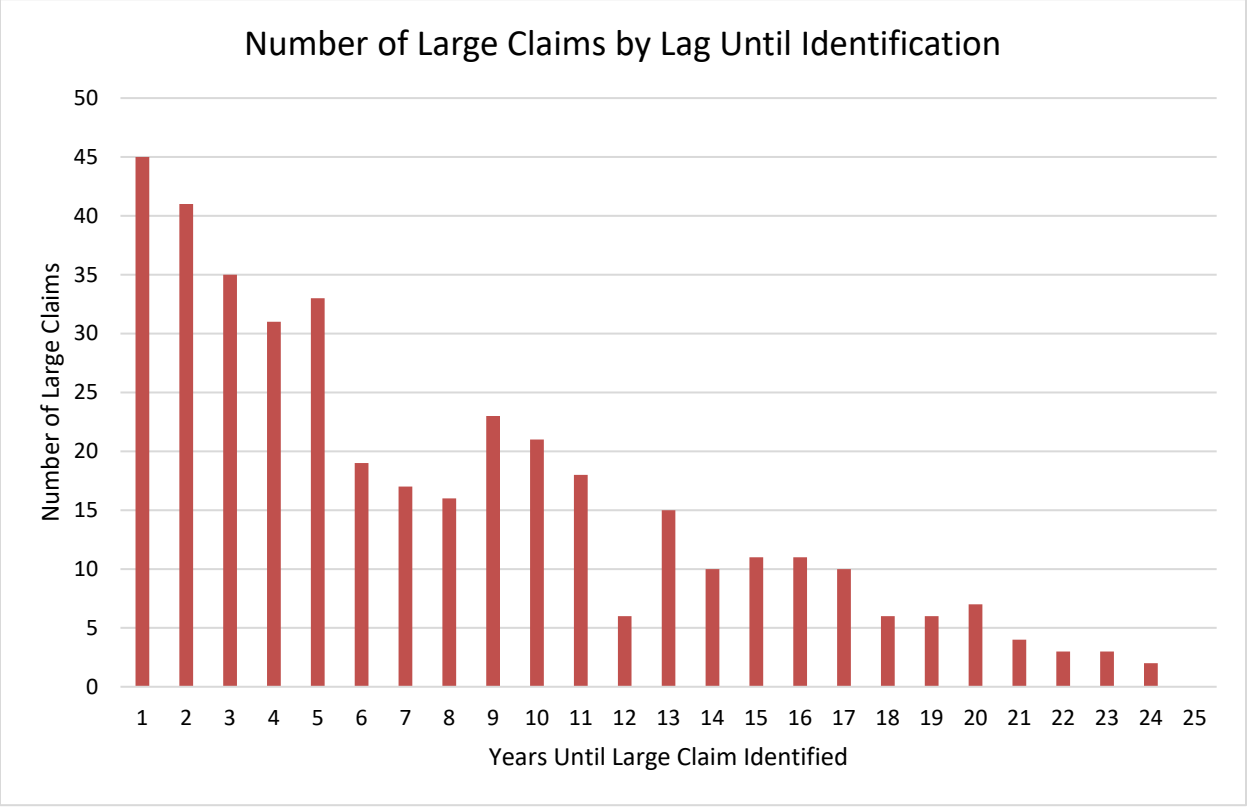
Exhibit E-24 provides the total projected claim payments for future fiscal years assuming no increase in claim activity. The first section of this exhibit displays future anticipated claim payments arising from currently reported claims (i.e., Report Years 2022 and prior). The second section displays claim payments arising from claims that will be reported in the future (Report Years 2022 and after). The third section displays the total of these two amounts.

Large Loss Claims

Large loss claims are defined as claims that meet or exceed the level of $250,000. T&M performed several analyses of large loss claims. These analyses included (1) calculation of the amount of time after a claim is reported for it be identified as "large," (i.e., for the sum of paid loss plus case reserves exceed the large claim threshold) (2) consideration of factors that increase the likelihood of a claim being a large claim, (3) consideration of reserving practices for large claims, and (4) consideration of the financial impact of large claims.

Using net incurred losses, T&M examined the current set of claims that have been identified as large. On average, these claims passed the $250,000 incurred threshold between the 7th and 8th years after report. Specifically, the claims were identified as large on average at 95.24

months, which is just before the 8th year (96 months). The following chart shows the number of large claims by the time it took to identify the claims as "large":



This length of time is not unexpected. Development on storage tank claims is slow as compared with many other insured lines of business. There can be a significant period of gathering more information, remediating, of testing and monitoring sites, of further remediation, of possibly re-opening claims, etc., which can lead to a long time period between the initial report of the claim and a determination of the ultimate liability.

Additionally, it is often the case that reserving is performed based on what is the "most likely" outcome (i.e., the mode of the distribution of potential reserves). As a result of this, initial reserves for any line will tend to resemble the most common claims, with large claims

identified only as information allows the adjuster to distinguish less common features of claims that might lead to a large claim.

The following chart shows claims currently identified as large as a percent of total reported claims by Report Year:

Missouri Petroleum Storage Tank Insurance Fund
Large Claims as a Percent of Total Claims by Report Year
As of June 30, 2022

Report Year	Total Claims	Large Claims	Percent Large
1993	3	0	0.0%
1994	71	3	4.2%
1995	70	4	5.7%
1996	1,204	83	6.9%
1997	258	17	6.6%
1998	423	28	6.6%
1999	409	27	6.6%
2000	493	39	7.9%
2001	490	22	4.5%
2002	247	12	4.9%
2003	196	13	6.6%
2004	188	16	8.5%
2005	134	10	7.5%
2006	106	7	6.6%
2007	140	11	7.9%
2008	127	9	7.1%
2009	124	2	1.6%
2010	96	5	5.2%
2011	86	8	9.3%
2012	94	6	6.4%
2013	123	8	6.5%
2014	105	8	7.6%
2015	99	7	7.1%
2016	101	9	8.9%
2017	112	10	8.9%
2018	97	10	10.3%
2019	101	13	12.9%
2020	81	2	2.5%
2021	67	4	6.0%
2022	44	3	6.8%
Total	**5,889**	**396**	**6.7%**

Note that this chart does not include incident reports in the total number of claims.

In addition, the following breakdown shows the anticipated large losses and average lag time to identification of the claims as large by claim type:

Missouri Petroleum Storage Tank Insurance Fund
Large Losses by Claim Type as of June 30, 2022

Claim Type	Total Claims	Large Claims	Percent Large	Average Lag
Insurance UST - Release	325	41	12.6%	64
Insurance UST - Closure	1,752	74	4.2%	77
Insurance UST - Other	602	63	10.5%	118
Remedial UST	2,592	136	5.2%	119
Insurance AST	348	68	19.5%	61
Remedial AST	270	14	5.2%	116
Total	**5,889**	**396**	**6.7%**	**96**

The percentages in the above chart do not necessarily reflect the true risk that a claim may become large over time. For instance, Remedial UST claims make up the largest category of large claims but one of the smallest categories by percentage. This may partly be a reflection of the fact that many such sites had already been partly remediated before the PSTIF began issuing payments. As a result, the percentage may understate the true riskiness by claim type going forward.

It is anticipated that remediations associated with tank closures ("Insurance UST – Closure") will continue to show relatively low risk of becoming large claims. Newer sites without legacy pollution and for which leak prevention has always been used will tend to have less catastrophic releases (if any) that went undetected. Therefore, tank closures at such sites are

unlikely to lead to discovery of large losses. By contrast, many older sites with legacy pollution issues have already undergone remediation efforts since the PSTIF became active. Therefore, tank closures at those sites may be less likely to result in large losses because the site has already been remediated recently.

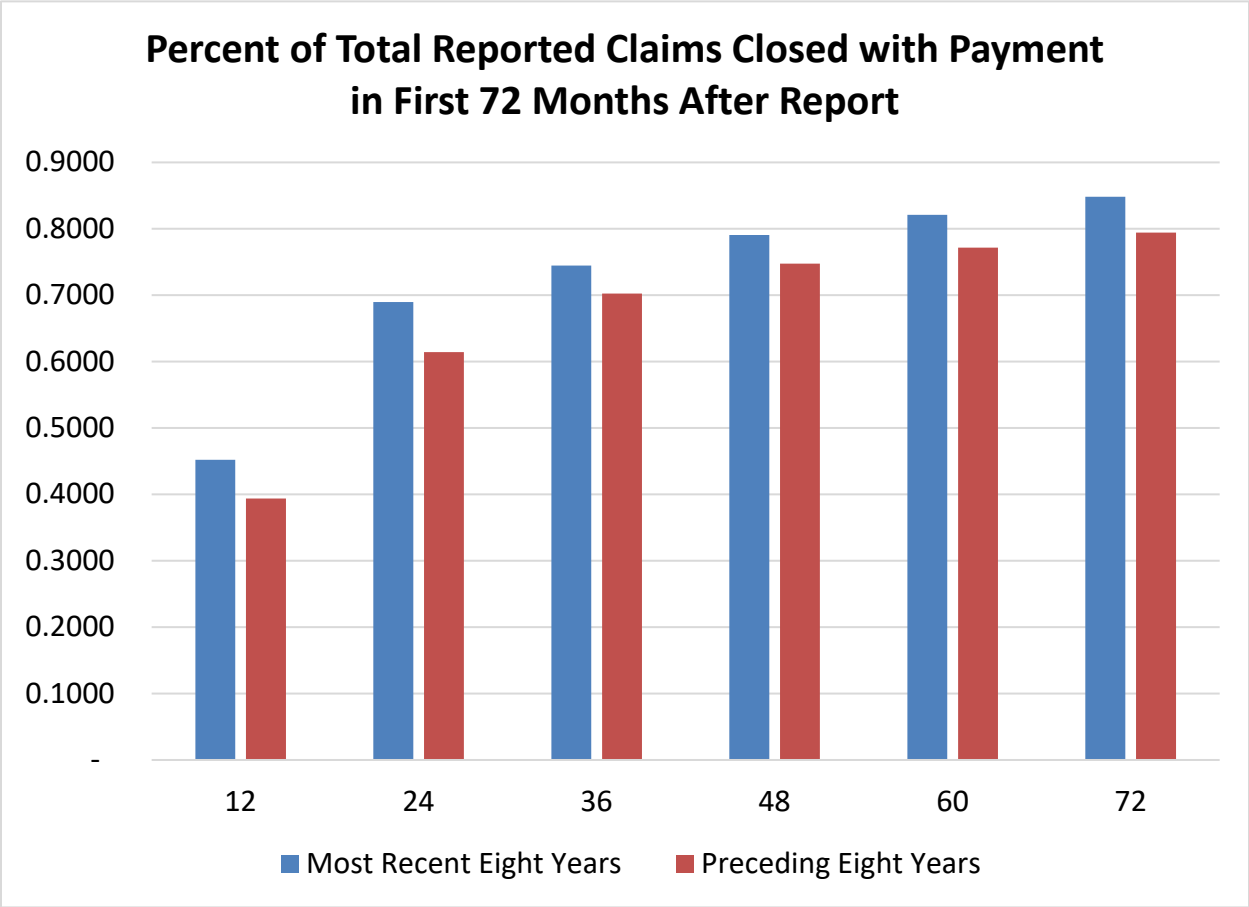
Large losses account for approximately $188.4 million in incurred losses, or approximately 48.0% of incurred losses, despite accounting for only 6.1% of claims. These values are slightly higher than those determined at the time of the previous analysis but continue to be consistent with expectations and historical numbers.

Settlement Speed

The Board's staff has undertaken significant efforts to improve the speed with which claims come to closure in recent years. However, because such changes are always incremental in nature, it often takes a long time to see them borne out in data. It is worth noting that the time to settlement is contingent on many factors and several of these factors are outside the control of the PSTIF. For example, PSTIF does not make the final determination that a cleanup is complete, but rather, this decision is made by the MoDNR.

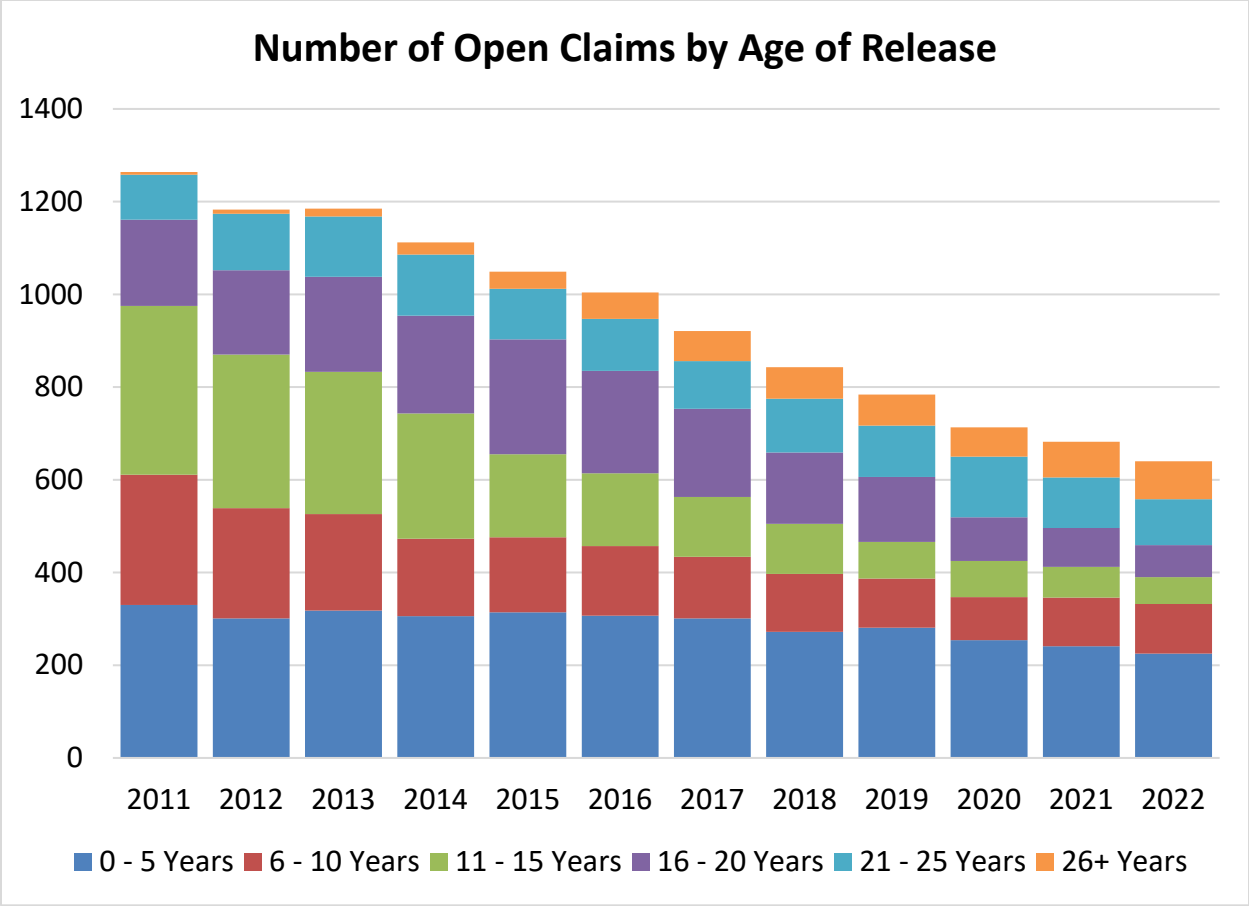
This year, Taylor & Mulder reviewed the rate at which claims are closed. It is our conclusion that claim closure rates for newly reported claims have generally improved over time.

The following chart shows the percent of claims closed at each maturity for the first 72 months for the most recent eight calendar years (2015 – 2022) and for the preceding eight years (2007 – 2014):



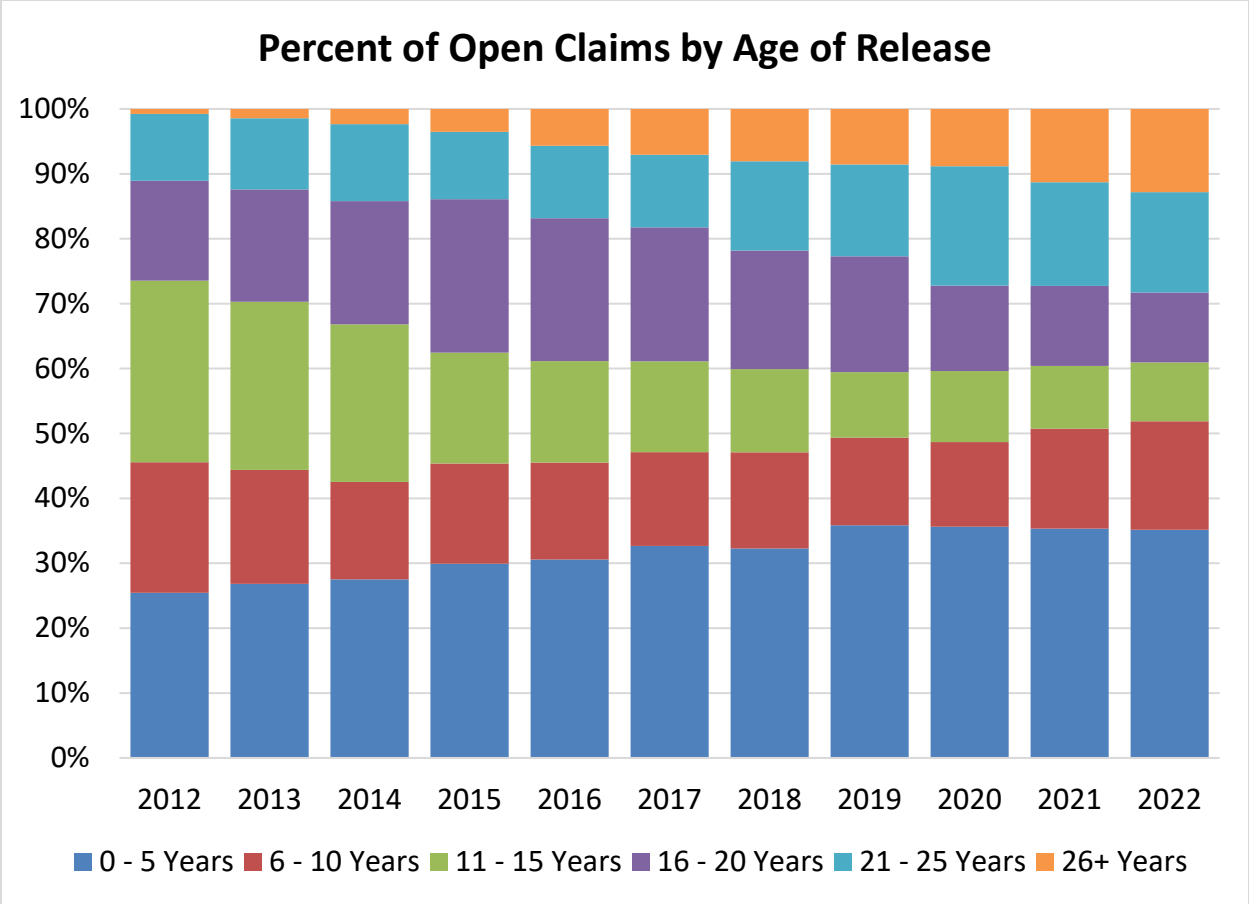
This chart shows that in the most recent eight fiscal years, the percentage of claims closed at each age is higher than for the preceding eight fiscal years.

This speedup in claim closures has apparently accelerated the reduction in open claims over time. The following chart shows the number of open claims by age of release:



Evidently, the number of claims between 0-5 years old has declined modestly in recent years, as have all categories of claims under 20 years old. However, the number of claims greater than 20 years old has increased modestly over most recent five years, as claims appear to "age into" that category at a rate very slightly faster than the rate at which the claims are closed.

As a result of this decrease in overall volume of open claims, coupled with the stable or slightly growing number of claims greater than 20 years old, the relative proportion of claims greater than 20 years old has increased in recent years:



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Conditions and Limitations

The analyses contained in this report were performed using accepted loss and loss adjustment expense reserving methods adjusted to the special needs of the PSTIF and in conformance with sound actuarial standards and principles. T&M introduced assumptions and judgments that we considered appropriate in the circumstances.

With regard to projections of ultimate values, it should be understood that the emergence and settlement of claims are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future ultimate losses and loss expenses are inherently uncertain because of the random nature of claims occurrences. They are also dependent upon future contingent events and are affected by many additional factors.

PSTIF claim reserving procedures and settlement philosophy, current and perceived social and economic inflation, current and future court and jury attitudes, legislative changes affecting the PSTIF, improvements in technology, and many other economic, legal, political, legislative and social factors all can have significant effects on ultimate claim costs. Therefore, we cannot warrant that actual developments will not differ from current projections. Such differences could be upward or downward and could be significant.

In summary, the ultimate loss and loss adjustment expense levels estimated in this report are subject to potential variations in estimation due to:

(1) the fact that the ultimate liability of PSTIF is subject to the outcome of events yet to occur;

(2) the unanticipated changes in the legal, economic, legislative or claims adjudication environments;

(3) statistical fluctuation in losses around the estimated or expected values when all other factors remain constant; and

(4) the fact that the actual future loss and loss payment and reporting patterns may differ from those applied in the determination of the expected losses or there may be unanticipated changes in the loss and expense loss and expense payment and reporting patterns;

Accordingly, no assurance can be given that future loss emergence will not deviate from the estimated ultimate loss and loss adjustment expenses. However, the ultimate loss and loss adjustment expense estimates were based on a reasonable application of generally accepted actuarial procedures and techniques applied to the information available.

We reviewed the information for overall reasonableness and presented any irregularities to the PSTIF contracted fund administrator for edification and clarification.

T&M relied without audit or verification on historical loss, loss adjustment expense, exposure data, and other information provided by the PSTIF and its employees. T&M has relied upon the data provided and on the oral and/or written statements made regarding the quality, accuracy, and completeness of the data and information supplied. Any inaccuracies or inconsistencies in the data could have a significant effect on the conclusions drawn.

Should any inaccuracies be found in the data, T&M should be notified immediately so that the analysis can be adjusted accordingly.

With regard to projections of estimated revenues, it should be understood that the revenue streams are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future revenues are inherently uncertain due to potential changes in technology, the implementation of environmental requirements, the introduction of alternative vehicle fuels, and changes in the economy among others. While T&M has used its best judgment is selecting trend values for each category of revenue, actual revenue collected is dependent upon unknown future events and may be affected by additional factors outside of PSTIF control.

T&M reflected anticipated investment income in the reserves assuming a 0.37% annual rate of return on investments. We did not independently verify the ability of the PSTIF to match this assumed rate.

The analysis in this report was limited to the loss and loss adjustment expense items noted in the scope of this project. This report does not include an examination of the assets of the PSTIF, nor did we form any opinion as to the value or validity of the assets. This report does not include a review or analysis of any income statement or other balance sheet items. This analysis with respect to loss and loss adjustment expense reserves is based upon the assumption that all reserves are backed by valid assets and that these assets reflect suitably scheduled maturities and/or sufficient liquidity to meet cash flow requirements.

This report is limited in scope to the estimate of the level of reserve adequacy at the evaluation date of the report. It also includes projections regarding cash flow of the operations of the PSTIF under certain narrow assumptions and conditions.

This report was prepared for use by persons technically competent in insurance financial matters. Persons receiving this report should be made aware of the availability of T&M, Inc. personnel to answer questions and/or amplify on any matter addressed therein.

Actuarial Analysis

Sources of Data

Data was provided by Ms. Kelley Ogletree with the PSTIF and Ms. Dorcee Lauen with Williams & Company Consulting, Inc., PSTIF's contracted fund administrator, in the form of several files. A full description of the names and contents of these files may be found as an appendix at the end of this report. In addition, we received additional information from interviews with PSTIF management and Williams' personnel, as well as from the PSTIF website, www.pstif.org.

Overall Methodology

Selection of Factors

In each of the methods described below, our selections of development factors were based on the evaluation of the predictive value of the various historical averages and the perceived presence or absence of trends and singularities. Apparent statistical aberrations were eliminated either judgmentally or by selecting a longer experience period to increase the credibility of the experience, whichever we believed more appropriate in the particular circumstances.

Paid Development Method

The paid development method uses historical loss payment patterns to project actual payments as of a given valuation date to ultimate. The PSTIF's historical payment patterns or the fitted loss development factors were relied upon in selecting the expected payment patterns at each evaluation. The difference between the projected ultimate losses and the losses and allocated

loss adjustment expenses paid through the evaluation date is the estimated reserve as of the evaluation date.

Estimates produced using the paid development method are not affected by changes in the case reserve position of the PSTIF which might have occurred during the review period, but may be understated since they ignore large unpaid claims. Also, this method may be susceptible to any changes in case settlement philosophy and/or speed of payment.

Incurred Development Method

The incurred, or reported, development method is similar to the paid development method and uses historical reporting patterns to project actual reported amounts (excluding IBNR) as of a given evaluation date to ultimate. The difference between the projected ultimate losses and the losses paid through the evaluation date is the estimated reserve as of the evaluation date.

In many situations, the incurred development method is preferred over the paid method since large open but unpaid claims are considered. This method is more responsive to changes in the external business environment, since changes in liability laws, legislative changes affecting the PSTIF, court decisions and other external factors are generally reflected in the case reserves as soon as claims management becomes aware of them. As a result, the incurred loss development factors at each stage of development tend to be lower, and more stable, than those of the corresponding paid development method. However, the incurred development method may be affected by changes in case reserving practices over time and, to a lesser extent, also may be affected by changes in claims settlement rates.

Bornhuetter-Ferguson Methods

Loss development methods may be affected by changes in the reporting and payment of claims. Random fluctuations in the reporting and payment of claims (such as may result from a single unusually large claim) are magnified by the development factors, potentially resulting in biased estimates and wide changes in the estimates from one evaluation to the next. To minimize such fluctuations, we applied the Bornhuetter-Ferguson method to incurred losses and to paid losses. The Bornhuetter-Ferguson method is particularly suited for projecting loss reserves for longer-tailed business with volatile or limited development patterns. The Bornhuetter-Ferguson method represents a compromise between traditional loss development methods such as the incurred and paid loss development methods and an expected loss ratio method.

For the incurred Bornhuetter-Ferguson method, initial expected losses are established for each accident year to be consistent with projected pure premium amounts, i.e. projected losses divided by an exposure base (in this case, insured tanks in-force for insurance claims or remaining potential remediation sites for remedial claims). These initial expected losses are then split into two components: expected reported losses and expected unreported losses. The expected unreported losses, which comprise the IBNR and bulk reserves for each accident year, are calculated as a function of the earned premium, the initial expected loss ratio, and the expected portion of ultimate losses that remains unreported or unreserved as of the evaluation date.

For the paid Bornhuetter-Ferguson method, initial expected losses are also derived from projected pure premium amounts. These initial expected losses are then split into two components: expected paid losses and expected unpaid losses. The expected unpaid losses, which comprise the IBNR and case reserves for each accident year, are calculated as a function of the initial expected loss ratio, the initial expected ultimate losses, and the expected portion of ultimate losses that remains unpaid as of the evaluation date.

Projection Methodologies for Cash Flow Analysis

Several overlapping projection methodologies were used to perform the cash flow analysis. First, regression techniques were used to project claim frequency and severity into future periods. These projections were then converted into parameters for a simulation model.

The simulation model used a Poisson distribution to predict the number of claims of each category for each Report Year. For each predicted claim, a lognormal distribution was then generated as the prediction of the ultimate size of that claim. For example, one trial of the simulation might predict that there would be 10 UST Insurance (Release) claims in a given Report Year. Each of those 10 claims would have a simulated claim size drawn from the lognormal distribution.

Repeating this process 10,000 times for each claim type and for each Report Year from 2023 to 2030, we obtained a set of potential ultimate losses that represent a probability distribution of outcomes, where more common answers represent more likely outcomes.

Historical losses were simulated using incurred loss development triangles. For each triangle, the loss development factors were simulated using normal distributions for each development period. The mean for each development period was selected to be the actuarial central estimate, while the standard deviation was selected to be the standard deviation of the historical LDFs.

For both historical and future claims, anticipated future payments by fiscal year were determined by applying fixed projected payment patterns to unpaid losses to determine the anticipated timing of future payments.

Combining these projections, we obtained an estimate of the range of possibilities for loss payments over time. We compared these loss payment projections to revenue projections to obtain an estimate of the range of possible outcomes for cash flows over time.

Methodology by Claim Type

Long-tailed lines of business have some important properties. These are lines of business for which claim payments can extend over a very long period (10 years or more) before closure. As claim payments are made over a long time horizon, the first few years after a claim is reported may have little or no actual claim payments. This produces relatively low paid losses at early maturities, and as a result, payment patterns can be strongly affected by small random fluctuations in payments from year to year.

The long payment pattern has a substantial effect on most categories of PSTIF claims. Paid losses at early maturities have shown extreme volatility, and as a result, paid losses have very low credibility (i.e., statistical stability) for some categories of claims.

By contrast, incurred losses have shown greater stability. When a claim is reported to the PSTIF, a reserve is established based on the expected ultimate loss for the claim. As the claim matures and losses are paid out, the incurred loss may be increased or decreased commensurate with the adjuster's interpretation of the ultimate value of the claim. In this case, the first estimate by the adjusters is close enough to the ultimate loss that development is low when compared to paid losses. Because development patterns for incurred losses were more stable over time, incurred loss development methods received greater relative weight in our analysis.

Incurred loss development, by contrast, is stable. Incurred losses do not undergo the same extreme changes as paid losses, making estimates from incurred losses more credible. In some cases, incurred loss development is modestly negative, implying that early reserve estimates are slightly over-stated. However, these trends seem to reverse at later maturities, returning incurred losses on average to slightly higher than the initial reserves as of 12 months.

When relatively little credibility could be placed in the loss development patterns observed in paid or incurred losses, higher reliance was placed on the Bornhuetter-Ferguson methods. These methods produce estimates that are not as significantly influenced by random variations in claim payout or reporting speeds, but are highly stable from year to year and are a reflection of the overall level of exposure.

Selections of Ultimate Losses

Generally, the selection of ultimate losses was based on selecting incurred loss development method for older years, as this method seemed to give the best result. In years where there was great variability, particularly more recent Report Years, we selected a combination of methods (including the Bornhuetter-Ferguson method) to provide greater stability in results.

Any exceptions to the above description were based on our review of the methods combined with our knowledge of specific accident years and other considerations as described in the background section of our report.

Loss Reserve Discounting

T&M reflected anticipated investment income on reserves using an assumed discount rate of 1.13%. This rate was based on historical yields by the State as of June 30, 2022. We did not independently verify the ability of the PSTIF to match these rates at June 30, 2022.

The undiscounted reserves and the discounted reserves are shown in the summary section of our report. The future payout of the undiscounted recommended reserve from 2023 to 2030 separately and for years subsequent to fiscal year 2030 on a combined basis is also provided in this section.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Executive Summary - Unpaid Losses & ALAE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Undiscounted		Discounted
	Case		Unpaid	Unpaid		Unpaid
Claim Type	Reserve	IBNR	ALAE	Loss & ALAE	Discount	Loss & ALAE
Insurance UST - Release	7,703,349	6,211,434	83,382	13,998,165	997,612	13,000,554
Insurance UST - Closure	10,112,622	6,193,175	97,709	16,403,506	950,712	15,452,794
Insurance UST - Other	6,146,369	7,638,633	82,604	13,867,606	883,542	12,984,064
Remedial UST	16,273,926	3,625,898	119,246	20,019,070	1,383,586	18,635,484
Insurance AST	14,929,959	7,565,206	134,798	22,629,964	1,650,133	20,979,830
Remedial AST	2,120,678	163,808	13,689	2,298,175	160,417	2,137,758
Total	**57,286,904**	**31,398,154**	**531,429**	**89,216,486**	**6,026,001**	**83,190,485**

Notes: Col (5) = (2) + (3) + (4)
Col (7) = (5) - (6)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	4,833,656	4,833,656	-	-	4,833,656
1995	4,387,026	4,387,026	-	-	4,387,026
1996	77,123,906	77,123,906	-	-	77,123,906
1997	19,517,450	19,225,269	-	-	19,225,269
1998	30,609,641	30,567,429	-	-	30,567,429
1999	25,406,453	25,410,657	-	-	25,410,657
2000	35,149,273	35,284,320	-	-	35,284,320
2001	16,652,726	16,601,351	-	-	16,601,351
2002	15,585,099	15,578,898	-	-	15,578,898
2003	12,303,866	12,187,113	-	-	12,187,113
2004	15,871,251	15,624,054	-	-	15,624,054
2005	11,824,826	11,763,233	-	-	11,763,233
2006	8,080,625	7,994,656	-	-	7,994,656
2007	10,598,158	10,194,388	-	-	10,194,388
2008	9,039,777	8,922,047	9,304,753	9,059,161	8,918,566
2009	6,374,941	6,208,168	7,022,183	6,458,589	6,367,531
2010	5,102,915	5,443,386	5,391,470	5,805,976	5,516,065
2011	9,467,806	9,545,037	8,875,073	9,459,022	9,664,716
2012	8,498,227	7,834,271	8,855,487	8,072,568	8,141,925
2013	8,828,127	8,234,404	8,888,707	8,386,230	8,622,087
2014	7,639,860	7,697,510	7,635,369	7,985,816	7,891,195
2015	11,517,361	10,786,289	10,476,150	10,575,462	10,710,982
2016	9,378,551	9,219,547	9,134,893	9,266,507	9,316,191
2017	12,535,147	12,734,943	10,893,615	12,143,173	12,411,785
2018	9,478,795	10,071,335	9,517,683	10,230,386	9,957,750
2019	12,612,878	13,343,837	10,806,693	12,478,858	12,804,405
2020	5,449,895	6,797,067	8,290,699	7,962,656	7,794,191
2021	7,147,416	9,015,419	9,454,636	10,447,921	10,084,201
2022	9,745,715	8,507,312	8,778,567	8,394,509	8,903,372
TOTAL	420,761,362	421,136,526	133,325,979	136,726,833	423,880,916

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS	PAID ALAE	UNPAID ALAE	ULTIMATE ALAE	ULTIMATE LOSS & ALAE	UNPAID LOSS & ALAE
1994	4,833,656	3,955,065	4,833,656	878,592	-	878,592			-	4,833,656	878,592
1995	4,387,026	4,187,026	4,387,026	200,000	-	200,000			-	4,387,026	200,000
1996	77,123,906	71,034,420	77,123,906	6,089,486	-	6,089,486	-	-	-	77,123,906	6,089,486
1997	19,225,269	18,583,061	19,225,269	642,208	-	642,208	43,792	3,848	47,641	19,272,910	646,056
1998	30,567,429	28,090,019	30,567,429	2,477,410	-	2,477,410	86,311	14,845	101,157	30,668,586	2,492,255
1999	25,410,657	23,832,241	25,401,575	1,569,334	9,082	1,578,416	77,074	9,458	86,533	25,497,190	1,587,875
2000	35,284,320	31,041,263	35,101,495	4,060,232	182,826	4,243,058	91,063	25,426	116,489	35,400,809	4,268,483
2001	16,601,351	14,276,854	16,565,438	2,288,584	35,913	2,324,497	55,475	13,929	69,404	16,670,756	2,338,426
2002	15,578,898	14,189,282	15,457,763	1,268,481	121,134	1,389,615	48,870	8,327	57,197	15,636,095	1,397,942
2003	12,187,113	11,362,589	12,122,596	760,007	64,516	824,524	56,208	4,941	61,148	12,248,261	829,464
2004	15,624,054	14,130,494	15,409,732	1,279,239	214,321	1,493,560	138,516	8,950	147,465	15,771,519	1,502,510
2005	11,763,233	9,682,586	11,511,580	1,828,994	251,653	2,080,647	109,961	12,468	122,428	11,885,661	2,093,114
2006	7,994,656	6,746,480	7,757,909	1,011,429	236,747	1,248,176	65,981	7,479	73,460	8,068,117	1,255,656
2007	10,194,388	9,333,161	9,863,195	530,033	331,193	861,226	98,420	5,161	103,581	10,297,968	866,387
2008	8,918,566	7,907,463	8,476,413	568,950	442,152	1,011,102	40,027	6,059	46,085	8,964,651	1,017,161
2009	6,367,531	5,472,488	5,830,614	358,125	536,917	895,043	29,703	5,363	35,066	6,402,597	900,406
2010	5,516,065	3,680,087	5,102,915	1,422,828	413,150	1,835,978	31,464	11,002	42,466	5,558,531	1,846,980
2011	9,664,716	6,951,367	8,689,592	1,738,225	975,124	2,713,349	35,193	16,259	51,452	9,716,168	2,729,608
2012	8,141,925	6,568,760	7,215,547	646,787	926,378	1,573,165	33,080	9,427	42,507	8,184,432	1,582,592
2013	8,622,087	6,274,144	7,355,444	1,081,300	1,266,643	2,347,942	29,178	14,070	43,247	8,665,334	2,362,012
2014	7,891,195	4,759,328	6,713,948	1,954,620	1,177,247	3,131,867	26,993	18,767	45,760	7,936,955	3,150,634
2015	10,710,982	7,249,090	9,111,728	1,862,638	1,599,254	3,461,892	45,559	20,745	66,304	10,777,286	3,482,637
2016	9,316,191	5,523,535	7,574,601	2,051,067	1,741,589	3,792,656	25,262	22,727	47,988	9,364,179	3,815,383
2017	12,411,785	6,716,803	10,229,880	3,513,077	2,181,905	5,694,982	40,546	34,126	74,672	12,486,457	5,729,109
2018	9,957,750	4,682,403	7,860,967	3,178,565	2,096,782	5,275,347	25,852	31,612	57,464	10,015,214	5,306,959
2019	12,804,405	5,277,828	9,735,018	4,457,190	3,069,387	7,526,577	36,075	45,102	81,177	12,885,582	7,571,679
2020	7,794,191	1,642,480	4,493,547	2,851,066	3,300,644	6,151,710	16,080	36,863	52,943	7,847,134	6,188,573
2021	10,084,201	1,410,865	5,414,433	4,003,568	4,669,768	8,673,336	14,197	51,973	66,170	10,150,371	8,725,309
2022	8,903,372	634,676	3,349,546	2,714,870	5,553,826	8,268,696	11,228	49,549	60,777	8,964,149	8,318,245
TOTAL	423,880,916	335,195,859	392,482,763	57,286,904	31,398,154	88,685,057	1,312,107	488,475	1,800,582	425,681,499	89,173,533

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	246,661	246,661	-	-	246,661
1995	241,953	241,953	-	-	241,953
1996	2,176,370	2,176,370	-	-	2,176,370
1997	1,995,927	1,995,927	-	-	1,995,927
1998	1,388,630	1,351,348	-	-	1,351,348
1999	142,573	142,573	-	-	142,573
2000	1,826,990	1,817,407	-	-	1,817,407
2001	1,081,236	1,081,236	-	-	1,081,236
2002	719,666	719,666	-	-	719,666
2003	2,074,480	2,044,371	-	-	2,044,371
2004	1,317,493	1,282,928	-	-	1,282,928
2005	1,682,156	1,685,576	-	-	1,685,576
2006	176,129	170,299	-	-	170,299
2007	2,635,693	2,458,782	-	-	2,458,782
2008	2,191,454	2,119,180	2,012,154	2,096,071	2,119,180
2009	922,274	936,903	950,748	946,518	939,111
2010	676,953	723,114	611,166	777,461	697,174
2011	2,644,675	2,415,635	2,267,914	2,302,828	2,407,763
2012	1,157,711	1,071,428	1,187,400	1,107,200	1,130,935
2013	302,019	290,855	625,227	429,150	411,813
2014	2,074,072	1,930,966	1,803,991	1,865,753	2,002,519
2015	3,815,648	3,393,057	2,858,182	3,113,704	3,295,148
2016	1,851,216	1,737,370	1,719,529	1,741,572	1,762,422
2017	2,176,431	1,865,134	1,914,419	1,815,710	1,942,924
2018	1,286,494	1,382,980	1,493,863	1,520,329	1,420,917
2019	707,800	792,558	1,313,756	1,129,157	985,818
2020	1,165,659	1,928,375	1,625,030	1,944,830	1,665,974
2021	1,505,338	2,810,403	1,839,019	2,624,279	2,424,567
2022	3,103,286	3,165,131	1,863,029	2,189,124	2,405,761
TOTAL	43,286,986	43,978,184	24,085,426	25,603,684	43,027,118

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,281,996	2,176,370	894,374	-	894,374
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,351,348	1,338,666	1,351,348	12,682	-	12,682
1999	142,573	142,573	142,573	-	-	-
2000	1,817,407	1,758,542	1,817,407	58,865	-	58,865
2001	1,081,236	1,026,765	1,081,236	54,471	-	54,471
2002	719,666	634,837	719,666	84,828	-	84,828
2003	2,044,371	1,969,276	2,044,371	75,095	-	75,095
2004	1,282,928	1,242,288	1,283,109	40,820	(181)	40,639
2005	1,685,576	971,431	1,682,156	710,724	3,420	714,145
2006	170,299	161,243	168,243	7,000	2,056	9,056
2007	2,458,782	2,353,741	2,398,612	44,871	60,170	105,042
2008	2,119,180	1,893,642	2,034,991	141,349	84,188	225,538
2009	939,111	783,624	879,624	96,000	59,486	155,486
2010	697,174	378,913	676,953	298,040	20,221	318,261
2011	2,407,763	2,002,952	2,191,528	188,576	216,235	404,811
2012	1,130,935	856,110	966,601	110,491	164,334	274,825
2013	411,813	210,187	256,528	46,341	155,284	201,625
2014	2,002,519	1,332,249	1,662,972	330,723	339,547	670,270
2015	3,295,148	2,333,718	2,859,888	526,170	435,260	961,429
2016	1,762,422	1,081,888	1,406,288	324,400	356,134	680,534
2017	1,942,924	1,133,161	1,414,084	280,923	528,840	809,763
2018	1,420,917	569,047	998,234	429,187	422,683	851,869
2019	985,818	265,564	519,267	253,703	466,550	720,253
2020	1,665,974	340,637	1,165,659	825,022	500,315	1,325,337
2021	2,424,567	297,198	1,454,650	1,157,452	969,917	2,127,369
2022	2,405,761	267,545	978,786	711,241	1,426,975	2,138,215
TOTAL	43,027,118	29,112,335	36,815,684	7,703,349	6,211,434	13,914,784

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	1,128,314	1,128,314	-	-	1,128,314
1995	830,629	830,629	-	-	830,629
1996	3,877,028	3,877,028	-	-	3,877,028
1997	4,620,899	4,620,899	-	-	4,620,899
1998	5,964,475	5,964,475	-	-	5,964,475
1999	9,671,222	9,666,343	-	-	9,666,343
2000	5,616,449	5,578,254	-	-	5,578,254
2001	2,271,622	2,223,792	-	-	2,223,792
2002	4,432,164	4,424,115	-	-	4,424,115
2003	3,555,208	3,560,033	-	-	3,560,033
2004	2,338,322	2,350,003	-	-	2,350,003
2005	2,824,031	2,810,686	-	-	2,810,686
2006	1,780,461	1,831,452	-	-	1,831,452
2007	4,176,104	4,139,122	-	-	4,139,122
2008	2,981,045	3,109,495	2,904,619	3,121,374	3,109,495
2009	2,263,127	2,156,236	2,274,504	2,206,278	2,156,236
2010	1,945,107	2,099,122	1,989,105	2,159,759	2,099,122
2011	1,861,269	1,743,809	1,929,498	1,822,166	1,839,185
2012	2,813,870	2,660,505	2,729,058	2,634,876	2,709,577
2013	3,933,182	3,879,693	3,558,011	3,727,968	3,774,713
2014	3,104,695	3,440,412	2,884,084	3,290,372	3,179,890
2015	2,704,196	2,855,924	2,541,378	2,776,309	2,719,452
2016	2,490,286	2,431,673	2,383,728	2,395,579	2,425,317
2017	2,799,997	2,852,096	2,587,250	2,737,033	2,744,094
2018	3,245,380	3,014,126	2,787,942	2,915,723	2,990,793
2019	2,867,197	3,502,678	2,507,716	3,247,108	3,085,834
2020	966,130	1,117,811	1,681,977	1,482,990	1,427,593
2021	925,849	1,533,775	1,846,176	2,005,226	1,795,059
2022	3,391,928	2,273,050	1,777,097	1,895,339	1,981,829
TOTAL	91,380,185	91,675,550	36,382,144	38,418,099	91,043,333

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,620,899	4,476,358	4,620,899	144,541	-	144,541
1998	5,964,475	5,238,246	5,964,475	726,229	-	726,229
1999	9,666,343	9,412,640	9,666,343	253,702	-	253,702
2000	5,578,254	5,442,164	5,578,254	136,090	-	136,090
2001	2,223,792	2,188,879	2,223,792	34,913	-	34,913
2002	4,424,115	4,243,920	4,418,120	174,200	5,996	180,196
2003	3,560,033	3,345,219	3,555,208	209,989	4,825	214,814
2004	2,350,003	2,166,165	2,338,322	172,158	11,681	183,838
2005	2,810,686	2,614,037	2,765,098	151,061	45,588	196,649
2006	1,831,452	1,364,261	1,780,461	416,200	50,991	467,191
2007	4,139,122	3,734,150	4,020,125	285,975	118,997	404,972
2008	3,109,495	2,612,744	2,972,885	360,142	136,609	496,751
2009	2,156,236	1,945,535	2,027,535	82,000	128,701	210,701
2010	2,099,122	1,625,448	1,945,107	319,659	154,015	473,674
2011	1,839,185	1,532,420	1,584,634	52,214	254,551	306,765
2012	2,709,577	2,268,503	2,386,388	117,885	323,189	441,074
2013	3,774,713	3,047,996	3,452,011	404,015	322,703	726,718
2014	3,179,890	2,321,900	3,008,322	686,422	171,569	857,990
2015	2,719,452	1,938,080	2,477,479	539,399	241,973	781,372
2016	2,425,317	1,711,971	2,077,388	365,417	347,929	713,346
2017	2,744,094	1,808,008	2,396,824	588,816	347,270	936,086
2018	2,990,793	1,889,816	2,484,981	595,165	505,812	1,100,977
2019	3,085,834	1,470,814	2,707,603	1,236,789	378,231	1,615,020
2020	1,427,593	400,210	783,580	383,370	644,012	1,027,383
2021	1,795,059	233,590	925,849	692,259	869,210	1,561,469
2022	1,981,829	219,104	852,504	633,400	1,129,325	1,762,725
TOTAL	91,043,333	74,737,536	84,850,158	10,112,622	6,193,175	16,305,797

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	3,458,682	3,458,682	-	-	3,458,682
1995	3,093,591	3,093,591	-	-	3,093,591
1996	2,380,349	2,380,349	-	-	2,380,349
1997	3,873,160	3,713,448	-	-	3,713,448
1998	3,005,904	3,005,904	-	-	3,005,904
1999	2,722,748	2,722,748	-	-	2,722,748
2000	4,365,025	4,365,025	-	-	4,365,025
2001	1,094,640	1,059,580	-	-	1,059,580
2002	4,534,564	4,572,596	-	-	4,572,596
2003	3,362,272	3,393,347	-	-	3,393,347
2004	4,808,890	4,650,372	-	-	4,650,372
2005	2,192,158	2,159,058	-	-	2,159,058
2006	3,294,278	3,119,616	-	-	3,119,616
2007	976,698	889,657	-	-	889,657
2008	2,528,540	2,292,566	2,330,859	2,254,673	2,292,566
2009	943,108	1,025,753	1,258,834	1,078,032	1,025,753
2010	223,439	245,094	587,587	365,724	245,094
2011	2,030,174	2,231,612	1,869,249	2,183,973	2,231,612
2012	1,110,462	1,151,209	1,249,954	1,220,128	1,182,938
2013	1,439,871	1,159,779	1,444,237	1,221,695	1,316,396
2014	514,407	498,604	887,838	692,907	648,439
2015	2,867,990	2,293,498	2,182,979	2,176,027	2,380,123
2016	1,666,651	1,451,309	1,512,665	1,485,098	1,528,931
2017	1,920,992	1,806,555	1,646,875	1,688,232	1,863,774
2018	1,064,113	1,204,189	1,238,300	1,303,093	1,303,093
2019	1,975,262	2,390,418	1,682,870	1,970,024	2,390,418
2020	775,364	837,469	1,230,340	1,112,853	1,230,340
2021	500,773	353,678	1,215,000	1,034,742	1,215,000
2022	88,000	358,355	1,122,000	942,272	1,122,000
TOTAL	62,812,105	61,884,060	21,459,586	20,729,472	64,560,447

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	3,458,682	2,930,701	3,458,682	527,981	-	527,981
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,380,349	2,220,428	2,380,349	159,921	-	159,921
1997	3,713,448	3,678,448	3,713,448	35,000	-	35,000
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,365,025	4,126,675	4,365,025	238,350	-	238,350
2001	1,059,580	1,026,602	1,055,182	28,580	4,398	32,978
2002	4,572,596	4,210,452	4,531,430	320,978	41,166	362,144
2003	3,393,347	3,011,404	3,362,272	350,868	31,075	381,943
2004	4,650,372	4,338,651	4,512,461	173,811	137,910	311,721
2005	2,159,058	1,933,923	2,078,924	145,001	80,134	225,135
2006	3,119,616	2,833,223	2,979,449	146,225	140,167	286,393
2007	889,657	816,275	835,778	19,502	53,880	73,382
2008	2,292,566	2,062,340	2,129,799	67,459	162,766	230,225
2009	1,025,753	943,108	943,108	-	82,644	82,644
2010	245,094	223,439	223,439	-	21,656	21,656
2011	2,231,612	1,456,728	2,017,508	560,780	214,104	774,884
2012	1,182,938	758,294	1,020,206	261,912	162,732	424,644
2013	1,316,396	901,545	998,657	97,112	317,739	414,850
2014	648,439	301,110	419,807	118,697	228,632	347,329
2015	2,380,123	1,564,169	1,838,141	273,972	541,982	815,955
2016	1,528,931	849,586	1,083,599	234,013	445,331	679,344
2017	1,863,774	897,982	1,250,328	352,346	613,446	965,792
2018	1,303,093	417,839	790,771	372,932	512,322	885,254
2019	2,390,418	804,016	1,415,866	611,850	974,552	1,586,402
2020	1,230,340	198,330	451,429	253,099	778,911	1,032,010
2021	1,215,000	60,751	155,916	95,166	1,059,083	1,154,249
2022	1,122,000	-	88,000	88,000	1,034,000	1,122,000
TOTAL	64,560,447	50,775,445	56,921,814	6,146,369	7,638,633	13,785,002

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Summary of Ultimate Losses

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) PAID BF ULTIMATE	(5) INC BF ULTIMATE	(6) SELECTED ULTIMATE
1994	-	-	-	-	-
1995	114,027	114,027	-	-	114,027
1996	68,580,702	68,580,702	-	-	68,580,702
1997	9,027,463	8,894,995	-	-	8,894,995
1998	19,109,962	19,105,032	-	-	19,105,032
1999	8,515,122	8,524,204	-	-	8,524,204
2000	16,504,534	16,687,360	-	-	16,687,360
2001	3,392,897	3,424,412	-	-	3,424,412
2002	3,349,884	3,313,700	-	-	3,313,700
2003	1,238,164	1,167,396	-	-	1,167,396
2004	2,248,009	2,312,921	-	-	2,312,921
2005	2,929,459	2,910,891	-	-	2,910,891
2006	626,438	667,805	-	-	667,805
2007	1,594,304	1,488,652	-	-	1,488,652
2008	705,588	760,887	1,327,696	945,037	760,887
2009	996,432	904,935	1,317,537	1,047,239	996,432
2010	823,410	924,608	1,124,205	1,047,032	1,031,949
2011	1,771,122	2,012,378	1,567,592	1,978,648	2,012,378
2012	305,720	350,040	816,809	504,857	327,880
2013	1,731,613	1,574,724	1,556,771	1,562,312	1,653,169
2014	1,097,762	923,168	1,104,544	985,977	1,027,863
2015	191,429	132,334	538,980	305,066	191,429
2016	1,228,160	1,498,868	1,056,518	1,390,195	1,372,408
2017	1,132,643	855,689	941,913	851,074	945,330
2018	966,210	1,042,387	802,627	970,014	992,871
2019	594,684	728,497	590,802	730,484	730,484
2020	357,215	546,349	409,853	558,188	558,188
2021	66,863	107,845	372,758	285,474	372,758
2022	295,469	146,858	394,824	269,554	332,189
TOTAL	149,495,286	149,701,665	13,923,430	13,431,152	150,498,312

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
RY	SELECTED ULTIMATE	PAID LOSS	INCURRED LOSS	CASE RESERVE	IBNR RESERVE	UNPAID LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	68,580,702	63,545,512	68,580,702	5,035,190	-	5,035,190
1997	8,894,995	8,432,328	8,894,995	462,667	-	462,667
1998	19,105,032	17,779,349	19,105,032	1,325,683	-	1,325,683
1999	8,524,204	7,539,703	8,515,122	975,419	9,082	984,502
2000	16,687,360	13,940,368	16,504,534	2,564,166	182,826	2,746,991
2001	3,424,412	2,422,364	3,392,897	970,533	31,515	1,002,048
2002	3,313,700	2,951,515	3,239,727	288,212	73,972	362,185
2003	1,167,396	1,068,824	1,138,780	69,956	28,616	98,572
2004	2,312,921	1,666,236	2,248,009	581,773	64,912	646,685
2005	2,910,891	2,391,427	2,788,380	396,953	122,511	519,464
2006	667,805	410,371	626,438	216,067	41,367	257,434
2007	1,488,652	1,213,637	1,393,322	179,685	95,331	275,015
2008	760,887	705,588	705,588	-	55,299	55,299
2009	996,432	712,041	815,042	103,001	181,391	284,392
2010	1,031,949	560,509	823,410	262,901	208,538	471,440
2011	2,012,378	1,040,105	1,771,122	731,017	241,256	972,273
2012	327,880	305,720	305,720	-	22,160	22,160
2013	1,653,169	1,078,285	1,357,285	279,000	295,884	574,884
2014	1,027,863	656,711	773,923	117,212	253,940	371,152
2015	191,429	107,157	107,158	1	84,271	84,272
2016	1,372,408	651,093	1,196,458	545,364	175,950	721,314
2017	945,330	554,058	663,561	109,503	281,769	391,271
2018	992,871	435,392	784,953	349,561	207,918	557,479
2019	730,484	230,417	526,812	296,395	203,672	500,067
2020	558,188	51,832	357,215	305,383	200,973	506,356
2021	372,758	14,326	66,001	51,675	306,757	358,432
2022	332,189	19,593	76,202	56,609	255,987	312,597
TOTAL	150,498,312	130,598,488	146,872,414	16,273,926	3,625,898	19,899,824

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Summary of Ultimate Losses

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) PAID BF ULTIMATE	(5) INC BF ULTIMATE	(6) SELECTED ULTIMATE
1994	-	-	-	-	-
1995	-	-	-	-	-
1996	-	-	-	-	-
1997	-	-	-	-	-
1998	478,042	478,042	-	-	478,042
1999	2,689,230	2,689,230	-	-	2,689,230
2000	1,195,793	1,195,793	-	-	1,195,793
2001	6,690,965	6,690,965	-	-	6,690,965
2002	2,309,328	2,309,328	-	-	2,309,328
2003	1,518,518	1,466,741	-	-	1,466,741
2004	3,006,603	2,953,221	-	-	2,953,221
2005	2,117,185	2,117,185	-	-	2,117,185
2006	2,203,318	2,205,484	-	-	2,205,484
2007	1,173,608	1,176,424	-	-	1,176,424
2008	581,362	584,651	669,506	587,294	584,651
2009	1,066,343	988,339	1,027,206	993,803	1,066,343
2010	1,434,006	1,451,447	1,068,159	1,450,208	1,442,726
2011	1,160,566	1,141,604	1,227,622	1,165,321	1,173,778
2012	3,110,464	2,601,089	2,853,946	2,596,882	2,790,595
2013	1,421,442	1,329,353	1,682,776	1,430,416	1,465,997
2014	848,925	904,360	929,136	1,135,832	1,032,484
2015	1,782,587	1,892,848	2,169,685	2,032,157	1,969,319
2016	2,142,238	2,100,326	2,429,626	2,236,267	2,227,114
2017	4,445,724	5,266,885	3,708,437	4,971,000	4,856,305
2018	2,916,597	3,427,653	3,156,395	3,499,664	3,250,077
2019	6,467,935	5,929,686	4,669,693	5,380,091	5,611,851
2020	2,014,164	2,169,310	3,252,460	2,714,345	2,714,345
2021	4,116,593	4,148,655	4,127,933	4,426,238	4,204,855
2022	2,867,031	2,563,918	3,566,791	3,057,459	3,013,800
TOTAL	59,758,566	59,782,538	36,539,371	37,676,976	60,686,653

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Summary of Case & IBNR Reserves

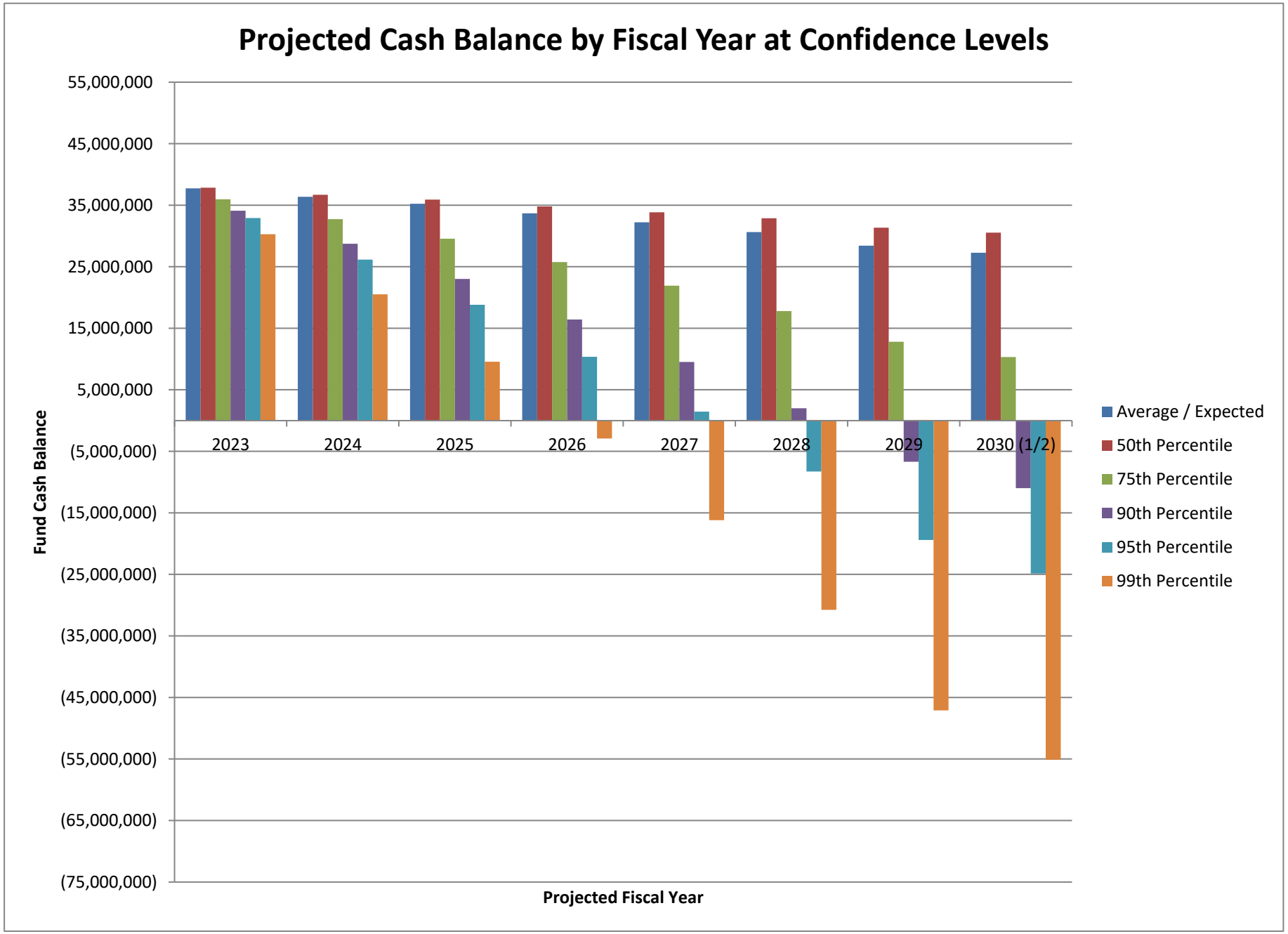
(1) RY	(2) SELECTED ULTIMATE	(3) PAID LOSS	(4) INCURRED LOSS	(5) CASE RESERVE	(6) IBNR RESERVE	(7) UNPAID LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,116,687	6,690,965	574,278	-	574,278
2002	2,309,328	1,909,066	2,309,328	400,262	-	400,262
2003	1,466,741	1,412,642	1,466,741	54,099	-	54,099
2004	2,953,221	2,780,056	2,953,221	173,165	-	173,165
2005	2,117,185	1,691,931	2,117,185	425,254	-	425,254
2006	2,205,484	1,977,382	2,203,318	225,937	2,166	228,102
2007	1,176,424	1,173,608	1,173,608	-	2,815	2,815
2008	584,651	581,362	581,362	-	3,289	3,289
2009	1,066,343	904,524	981,649	77,124	84,694	161,819
2010	1,442,726	891,779	1,434,006	542,227	8,721	550,948
2011	1,173,778	919,162	1,124,801	205,639	48,977	254,616
2012	2,790,595	2,380,133	2,536,632	156,499	253,963	410,462
2013	1,465,997	1,036,131	1,290,963	254,832	175,033	429,866
2014	1,032,484	147,359	848,925	701,566	183,559	885,125
2015	1,969,319	1,150,455	1,673,552	523,096	295,768	818,864
2016	2,227,114	1,228,997	1,810,869	581,872	416,245	998,118
2017	4,856,305	2,264,234	4,445,724	2,181,490	410,581	2,592,070
2018	3,250,077	1,370,309	2,802,029	1,431,720	448,048	1,879,768
2019	5,611,851	2,507,017	4,565,470	2,058,453	1,046,381	3,104,834
2020	2,714,345	608,554	1,613,963	1,005,409	1,100,381	2,105,790
2021	4,204,855	805,000	2,780,016	1,975,016	1,424,839	3,399,854
2022	3,013,800	128,434	1,354,054	1,225,620	1,659,746	2,885,366
TOTAL	60,686,653	38,191,488	53,121,447	14,929,959	7,565,206	22,495,166

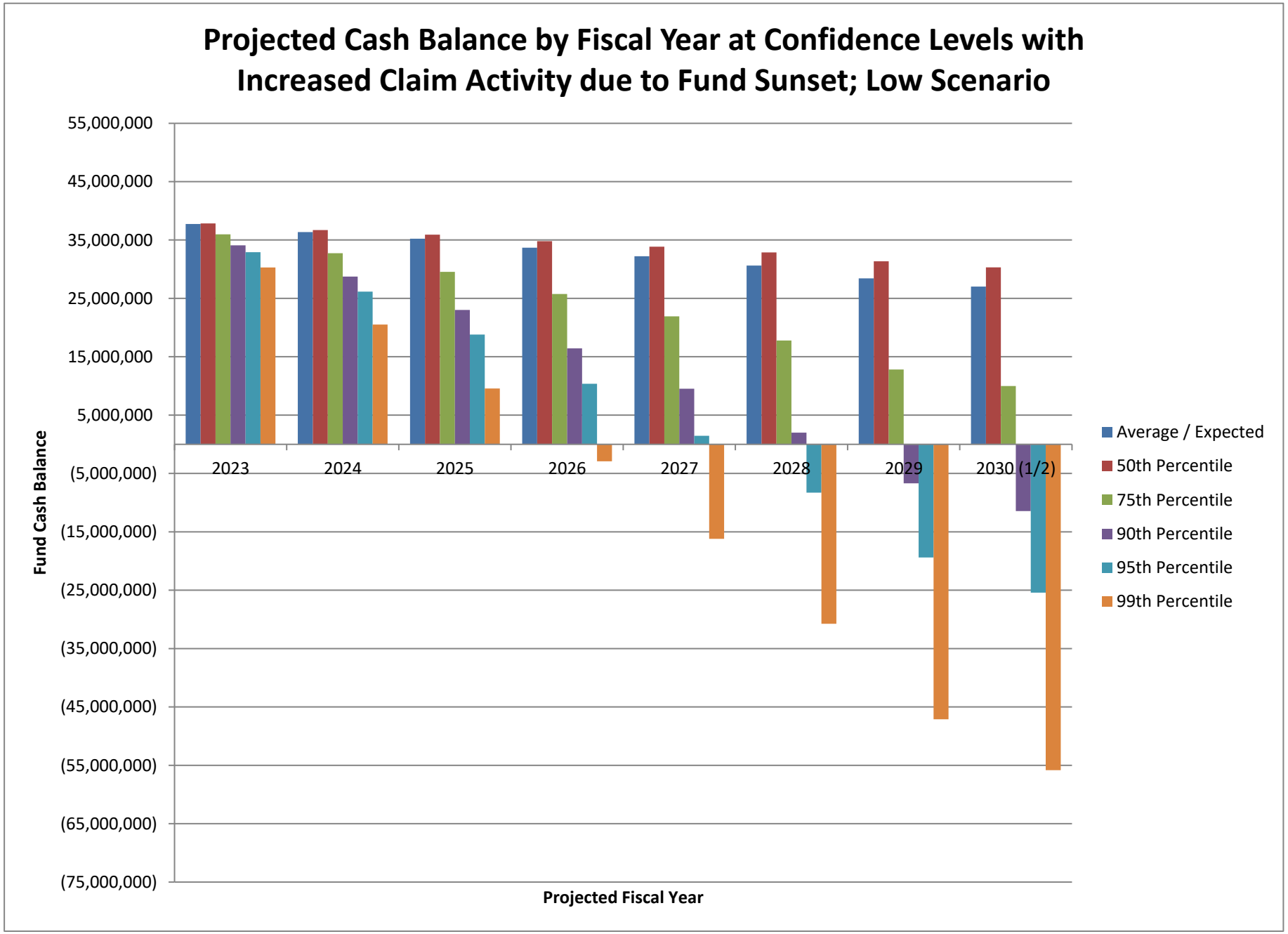
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Summary of Ultimate Losses

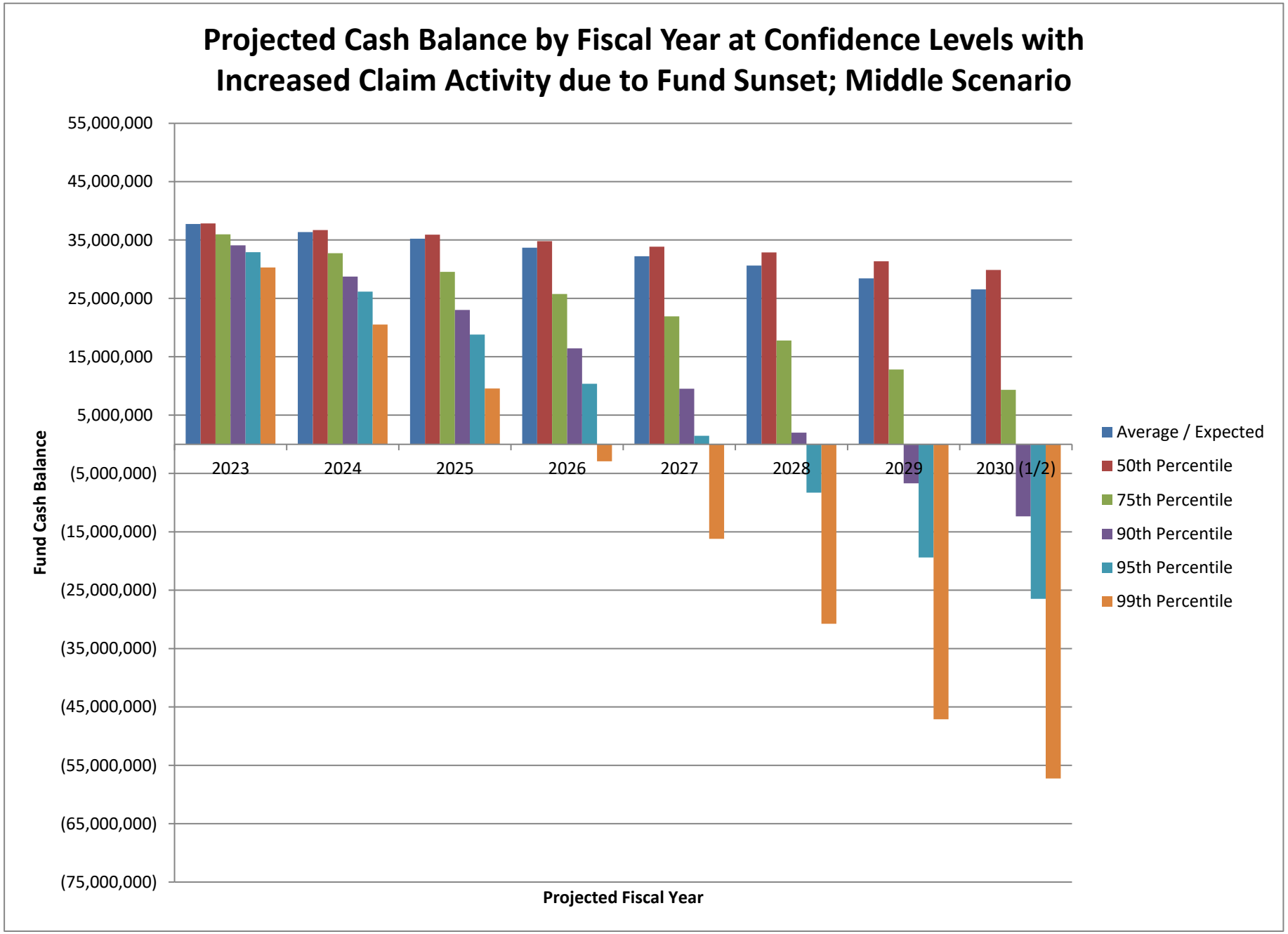
(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	-	-	-	-	-
1995	106,826	106,826	-	-	106,826
1996	109,456	109,456	-	-	109,456
1997	-	-	-	-	-
1998	662,628	662,628	-	-	662,628
1999	1,665,560	1,665,560	-	-	1,665,560
2000	5,640,481	5,640,481	-	-	5,640,481
2001	2,121,367	2,121,367	-	-	2,121,367
2002	239,493	239,493	-	-	239,493
2003	555,224	555,224	-	-	555,224
2004	2,151,935	2,074,609	-	-	2,074,609
2005	79,838	79,838	-	-	79,838
2006	-	-	-	-	-
2007	41,750	41,750	-	-	41,750
2008	51,787	55,268	59,919	54,711	51,787
2009	183,657	196,002	193,355	186,718	183,657
2010	-	-	11,248	5,793	-
2011	-	-	13,198	6,086	-
2012	-	-	18,320	8,626	-
2013	-	-	21,685	14,690	-
2014	-	-	25,776	14,976	-
2015	155,510	218,627	184,946	172,199	155,510
2016	-	-	32,827	17,797	-
2017	59,359	88,583	94,721	80,123	59,359
2018	-	-	38,556	21,563	-
2019	-	-	41,856	21,994	-
2020	171,362	197,752	91,039	149,450	197,752
2021	32,000	61,063	53,751	71,962	71,962
2022	-	-	54,826	40,761	47,793
TOTAL	14,028,233	14,114,529	936,023	867,449	14,065,053

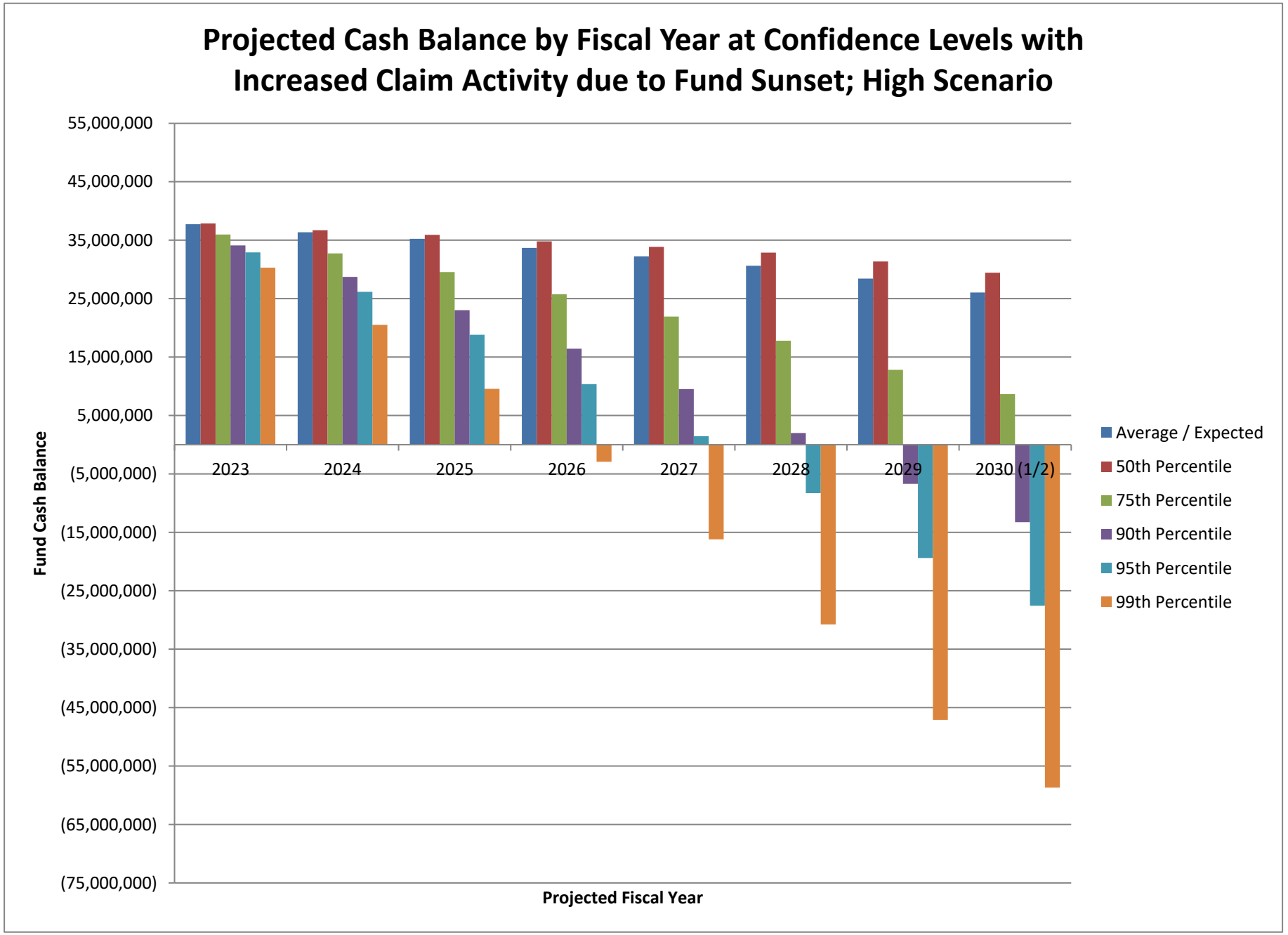
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Summary of Case & IBNR Reserves

(1) RY	(2) SELECTED ULTIMATE	(3) PAID LOSS	(4) INCURRED LOSS	(5) CASE RESERVE	(6) IBNR RESERVE	(7) UNPAID LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,665,560	1,481,747	1,665,560	183,813	-	183,813
2000	5,640,481	4,577,720	5,640,481	1,062,761	-	1,062,761
2001	2,121,367	1,495,557	2,121,367	625,810	-	625,810
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,074,609	1,937,099	2,074,609	137,511	-	137,511
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	51,787	51,787	51,787	-	-	-
2009	183,657	183,657	183,657	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	155,510	155,510	155,510	-	-	-
2016	-	-	-	-	-	-
2017	59,359	59,359	59,359	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	197,752	42,917	121,700	78,783	76,052	154,835
2021	71,962	-	32,000	32,000	39,962	71,962
2022	47,793	-	-	-	47,793	47,793
TOTAL	14,065,053	11,780,568	13,901,245	2,120,678	163,808	2,284,485


Projected Cash Balance by Fiscal Year at Confidence Levels
55,000,000
45,000,000
35,000,000
25,000,000
15,000,000
5,000,000
(5,000,000)
(15,000,000)
(25,000,000)
(35,000,000)
(45,000,000)
(55,000,000)
(65,000,000)
(75,000,000)
Fund Cash Balance
2023
2024
2025
2026
2027
2028
2029
2030 (1/2)
Projected Fiscal Year
Average / Expected
50th Percentile
75th Percentile
90th Percentile
95th Percentile
99th Percentile


Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; Low Scenario
55,000,000
45,000,000
35,000,000
25,000,000
15,000,000
5,000,000
(5,000,000)
(15,000,000)
(25,000,000)
(35,000,000)
(45,000,000)
(55,000,000)
(65,000,000)
(75,000,000)
Fund Cash Balance
2023
2024
2025
2026
2027
2028
2029
2030 (1/2)
Projected Fiscal Year
Average / Expected
50th Percentile
75th Percentile
90th Percentile
95th Percentile
99th Percentile


Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; Middle Scenario
55,000,000
45,000,000
35,000,000
25,000,000
15,000,000
5,000,000
(5,000,000)
(15,000,000)
(25,000,000)
(35,000,000)
(45,000,000)
(55,000,000)
(65,000,000)
(75,000,000)
Fund Cash Balance
2023
2024
2025
2026
2027
2028
2029
2030 (1/2)
Projected Fiscal Year
Average / Expected
50th Percentile
75th Percentile
90th Percentile
95th Percentile
99th Percentile


Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; High Scenario
55,000,000
45,000,000
35,000,000
25,000,000
15,000,000
5,000,000
(5,000,000)
(15,000,000)
(25,000,000)
(35,000,000)
(45,000,000)
(55,000,000)
(65,000,000)
(75,000,000)
Fund Cash Balance
2023
2024
2025
2026
2027
2028
2029
2030 (1/2)
Projected Fiscal Year
Average / Expected
50th Percentile
75th Percentile
90th Percentile
95th Percentile
99th Percentile

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Financial Projections Based on PSTIF 2021 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(I)	(J)	(K)	(L)
	Annual Revenues Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	Transport load fees	15,800,000	15,750,000	15,700,000	15,650,000	15,600,000	15,550,000	15,500,000	7,725,000	117,275,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	457,100	441,816	418,729	404,542	389,394	372,337	355,108	166847.1548	3,005,874
(6)	Total Revenues	17,384,100	17,318,816	17,245,729	17,181,542	17,116,394	17,049,337	16,982,108	8,455,347	128,733,374
	Administrative Expenses Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176	-	-	-	-	-	-	-	73,176
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	422,122	360,438	478,406	439,902	374,875	497,032	456,742	3,486,850
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,809,171	6,850,587	7,076,454	7,150,759	7,203,564	7,448,694	4,007,065	53,365,448
	Claim Payments Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(24)	Average / Expected	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	5,596,463	88,538,768
(25)	50th Percentile Losses	13,163,544	11,659,650	11,177,636	11,223,834	10,912,499	10,820,075	11,058,509	5,262,723	85,278,472
(26)	75th Percentile Losses	15,043,501	13,744,482	13,581,100	13,891,362	13,798,818	13,984,247	14,510,064	6,935,813	105,489,387
(27)	90th Percentile Losses	16,915,760	15,878,315	16,098,407	16,702,132	16,868,152	17,372,433	18,221,705	8,739,120	126,796,024
(28)	95th Percentile Losses	18,106,345	17,260,444	17,740,063	18,547,259	18,874,480	19,588,646	20,645,981	9,920,519	140,683,736
(29)	99th Percentile Losses	20,723,574	20,285,694	21,346,668	22,582,774	23,241,879	24,405,647	25,887,906	12,466,976	170,941,118
(30)	Cash balance @ 6/30/22	40,443,141								
	Funds Available at Fiscal Year-End:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	
(31)	Average / Expected	37,738,613	36,357,749	35,228,125	33,677,214	32,209,771	30,628,509	28,420,479	27,272,298	
(32)	50th Percentile	37,844,543	36,694,537	35,912,044	34,793,298	33,846,434	32,872,131	31,347,036	30,532,595	
(33)	75th Percentile	35,964,586	32,729,749	29,543,791	25,757,517	21,924,335	17,785,860	12,809,210	10,321,679	
(34)	90th Percentile	34,092,327	28,723,657	23,020,392	16,423,348	9,520,832	1,994,171	(6,694,119)	(10,984,957)	
(35)	95th Percentile	32,901,742	26,150,943	18,806,023	10,363,851	1,455,007	(8,287,867)	(19,400,433)	(24,872,670)	
(36)	99th Percentile	30,284,513	20,508,465	9,556,939	(2,920,748)	(16,196,991)	(30,756,866)	(47,111,358)	(55,130,052)	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Financial Projections Based on PSTIF 2021 Projections w/Increased Activity due to Sunset, Low Scenario

	(A)	(B)	(C)	(D)	(D)	(D)	(D)	(D)	(D)	(L)
	Annual Revenues Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	Transport load fees	15,800,000	15,750,000	15,700,000	15,650,000	15,600,000	15,550,000	15,500,000	7,725,000	117,275,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	457,100	441,816	418,729	404,542	389,394	372,337	355,108	166,847	3,005,874
(6)	Total Revenues	17,384,100	17,318,816	17,245,729	17,181,542	17,116,394	17,049,337	16,982,108	8,455,347	128,733,374
	Administrative Expenses Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	422,122	360,438	478,406	439,902	374,875	497,032	456,742	3,486,850
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,809,171	6,850,587	7,076,454	7,150,759	7,203,564	7,448,694	4,007,065	53,365,448
	Claim Payments Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(24)	Average / Expected	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	5,843,973	88,786,279
(25)	50th Percentile Losses	13,163,544	11,659,650	11,177,636	11,223,834	10,912,499	10,820,075	11,058,509	5,485,642	85,501,390
(26)	75th Percentile Losses	15,043,501	13,744,482	13,581,100	13,891,362	13,798,818	13,984,247	14,510,064	7,269,329	105,822,903
(27)	90th Percentile Losses	16,915,760	15,878,315	16,098,407	16,702,132	16,868,152	17,372,433	18,221,705	9,195,328	127,252,232
(28)	95th Percentile Losses	18,106,345	17,260,444	17,740,063	18,547,259	18,874,480	19,588,646	20,645,981	10,458,942	141,222,159
(29)	99th Percentile Losses	20,723,574	20,285,694	21,346,668	22,582,774	23,241,879	24,405,647	25,887,906	13,179,499	171,653,641
(30)	Cash balance @ 6/30/22	40,443,141								
	Funds Available at Fiscal Year-End:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	
(31)	Average / Expected	37,738,613	36,357,749	35,228,125	33,677,214	32,209,771	30,628,509	28,420,479	27,024,787	
(32)	50th Percentile	37,844,543	36,694,537	35,912,044	34,793,298	33,846,434	32,872,131	31,347,036	30,309,676	
(33)	75th Percentile	35,964,586	32,729,749	29,543,791	25,757,517	21,924,335	17,785,860	12,809,210	9,988,163	
(34)	90th Percentile	34,092,327	28,723,657	23,020,392	16,423,348	9,520,832	1,994,171	(6,694,119)	(11,441,166)	
(35)	95th Percentile	32,901,742	26,150,943	18,806,023	10,363,851	1,455,007	(8,287,867)	(19,400,433)	(25,411,093)	
(36)	99th Percentile	30,284,513	20,508,465	9,556,939	(2,920,748)	(16,196,991)	(30,756,866)	(47,111,358)	(55,842,575)	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Financial Projections Based on PSTIF 2021 Projections w/Increased Activity due to Sunset, Middle Scenario

	(A)	(B)	(C)	(D)	(D)	(D)	(D)	(D)	(D)	(L)
	Annual Revenues Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	Transport load fees	15,800,000	15,750,000	15,700,000	15,650,000	15,600,000	15,550,000	15,500,000	7,725,000	117,275,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	457,100	441,816	418,729	404,542	389,394	372,337	355,108	166,847	3,005,874
(6)	Total Revenues	17,384,100	17,318,816	17,245,729	17,181,542	17,116,394	17,049,337	16,982,108	8,455,347	128,733,374
	Administrative Expenses Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	422,122	360,438	478,406	439,902	374,875	497,032	456,742	3,486,850
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,809,171	6,850,587	7,076,454	7,150,759	7,203,564	7,448,694	4,007,065	53,365,448
	Claim Payments Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(24)	Average / Expected	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	6,338,994	89,281,300
(25)	50th Percentile Losses	13,163,544	11,659,650	11,177,636	11,223,834	10,912,499	10,820,075	11,058,509	5,931,478	85,947,226
(26)	75th Percentile Losses	15,043,501	13,744,482	13,581,100	13,891,362	13,798,818	13,984,247	14,510,064	7,936,361	106,489,935
(27)	90th Percentile Losses	16,915,760	15,878,315	16,098,407	16,702,132	16,868,152	17,372,433	18,221,705	10,107,745	128,164,648
(28)	95th Percentile Losses	18,106,345	17,260,444	17,740,063	18,547,259	18,874,480	19,588,646	20,645,981	11,535,789	142,299,006
(29)	99th Percentile Losses	20,723,574	20,285,694	21,346,668	22,582,774	23,241,879	24,405,647	25,887,906	14,604,545	173,078,687
(30)	Cash balance @ 6/30/22	40,443,141								
	Funds Available at Fiscal Year-End:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	
(31)	Average / Expected	37,738,613	36,357,749	35,228,125	33,677,214	32,209,771	30,628,509	28,420,479	26,529,767	
(32)	50th Percentile	37,844,543	36,694,537	35,912,044	34,793,298	33,846,434	32,872,131	31,347,036	29,863,840	
(33)	75th Percentile	35,964,586	32,729,749	29,543,791	25,757,517	21,924,335	17,785,860	12,809,210	9,321,131	
(34)	90th Percentile	34,092,327	28,723,657	23,020,392	16,423,348	9,520,832	1,994,171	(6,694,119)	(12,353,582)	
(35)	95th Percentile	32,901,742	26,150,943	18,806,023	10,363,851	1,455,007	(8,287,867)	(19,400,433)	(26,487,940)	
(36)	99th Percentile	30,284,513	20,508,465	9,556,939	(2,920,748)	(16,196,991)	(30,756,866)	(47,111,358)	(57,267,620)	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

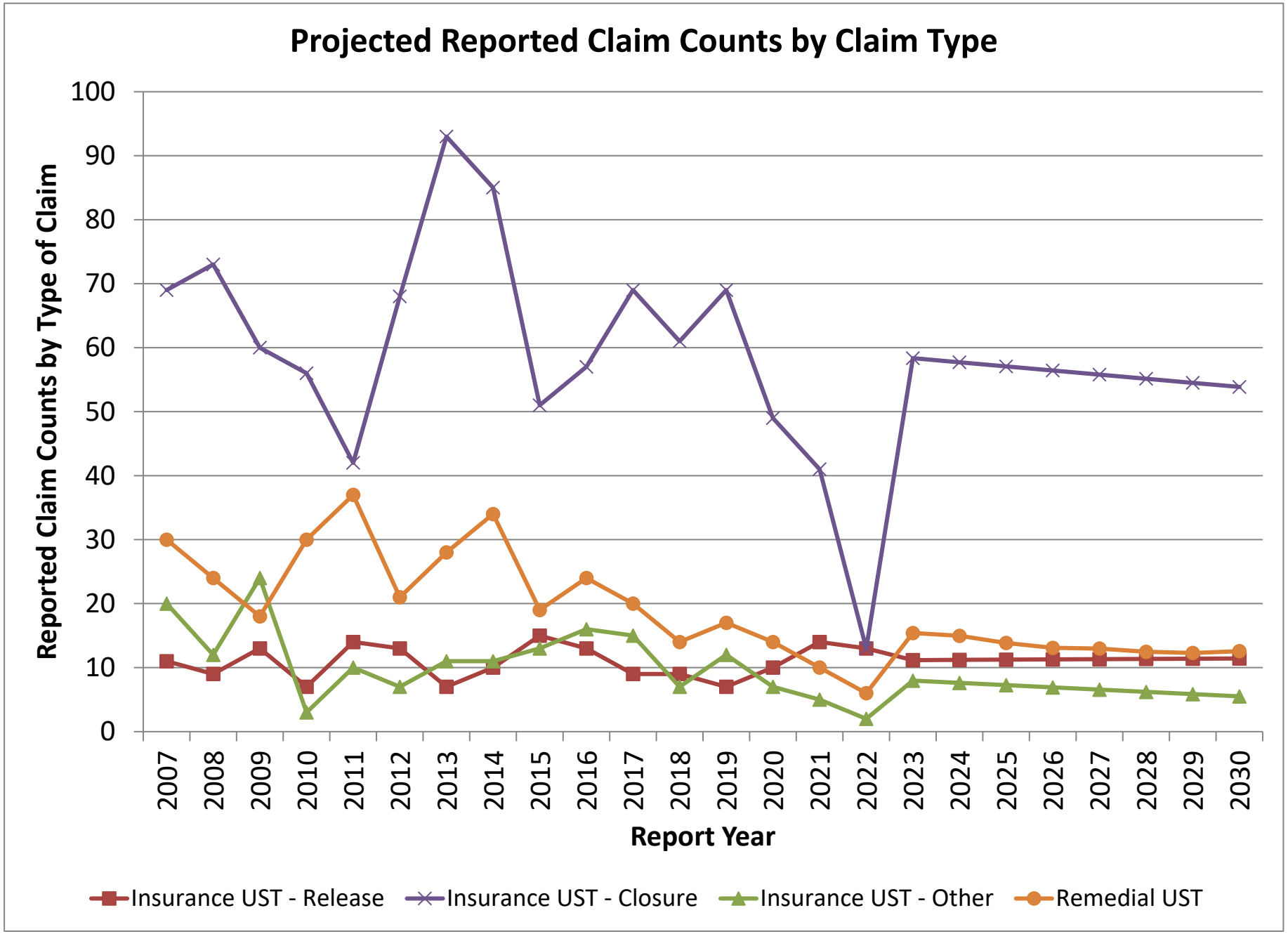
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Financial Projections Based on PSTIF 2021 Projections w/Increased Activity due to Sunset, High Scenario

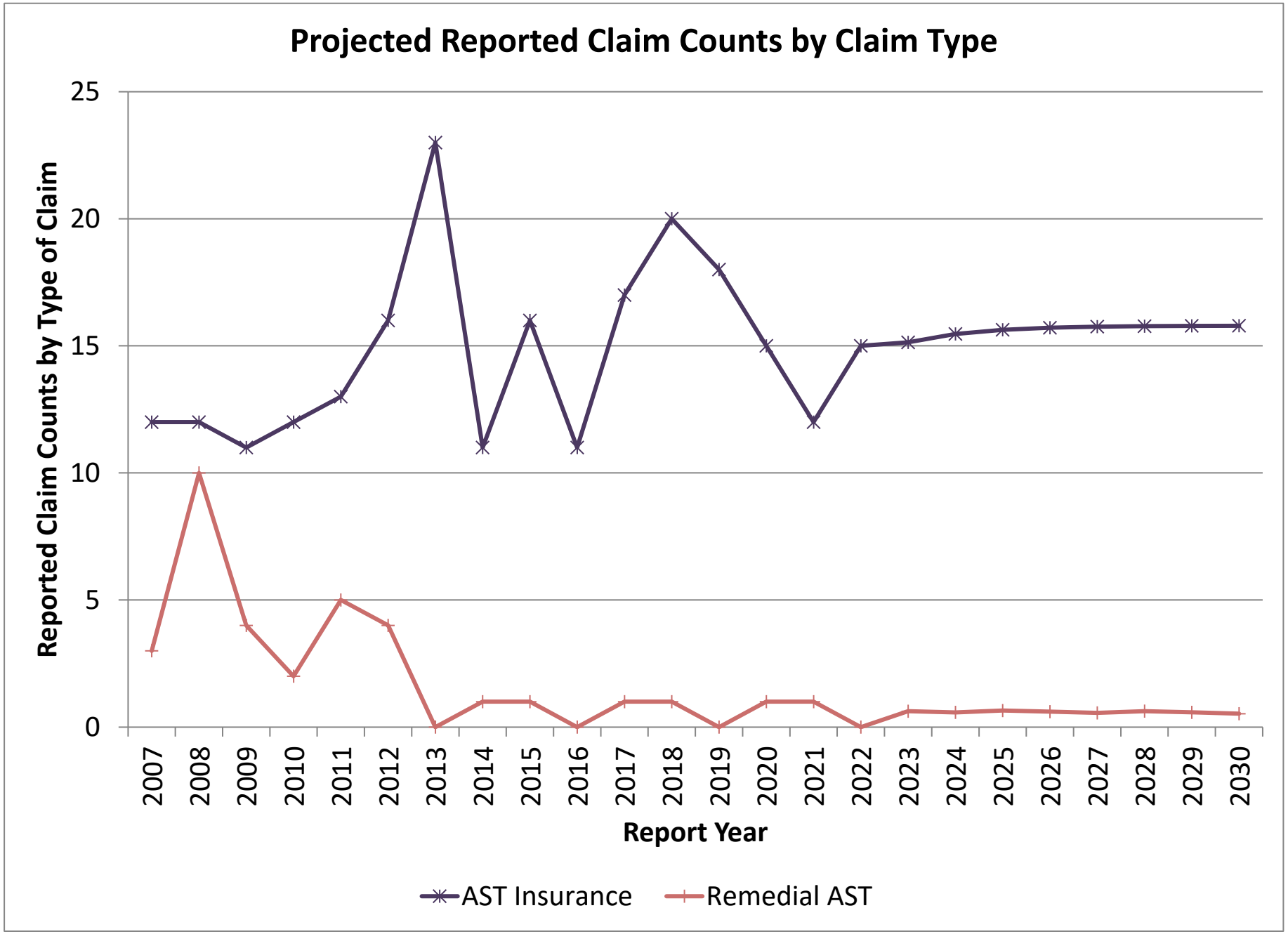
	(A)	(B)	(C)	(D)	(D)	(D)	(D)	(D)	(D)	(L)
	Annual Revenues Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	Transport load fees	15,800,000	15,750,000	15,700,000	15,650,000	15,600,000	15,550,000	15,500,000	7,725,000	117,275,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	457,100	441,816	418,729	404,542	389,394	372,337	355,108	166,847	3,005,874
(6)	Total Revenues	17,384,100	17,318,816	17,245,729	17,181,542	17,116,394	17,049,337	16,982,108	8,455,347	128,733,374
	Administrative Expenses Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	422,122	360,438	478,406	439,902	374,875	497,032	456,742	3,486,850
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,809,171	6,850,587	7,076,454	7,150,759	7,203,564	7,448,694	4,007,065	53,365,448
	Claim Payments Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(24)	Average / Expected	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	6,834,015	89,776,321
(25)	50th Percentile Losses	13,163,544	11,659,650	11,177,636	11,223,834	10,912,499	10,820,075	11,058,509	6,377,314	86,393,063
(26)	75th Percentile Losses	15,043,501	13,744,482	13,581,100	13,891,362	13,798,818	13,984,247	14,510,064	8,603,392	107,156,967
(27)	90th Percentile Losses	16,915,760	15,878,315	16,098,407	16,702,132	16,868,152	17,372,433	18,221,705	11,020,161	129,077,064
(28)	95th Percentile Losses	18,106,345	17,260,444	17,740,063	18,547,259	18,874,480	19,588,646	20,645,981	12,612,636	143,375,853
(29)	99th Percentile Losses	20,723,574	20,285,694	21,346,668	22,582,774	23,241,879	24,405,647	25,887,906	16,029,590	174,503,732
(30)	Cash balance @ 6/30/22	40,443,141								
	Funds Available at Fiscal Year-End:	2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	
(31)	Average / Expected	37,738,613	36,357,749	35,228,125	33,677,214	32,209,771	30,628,509	28,420,479	26,034,746	
(32)	50th Percentile	37,844,543	36,694,537	35,912,044	34,793,298	33,846,434	32,872,131	31,347,036	29,418,004	
(33)	75th Percentile	35,964,586	32,729,749	29,543,791	25,757,517	21,924,335	17,785,860	12,809,210	8,654,100	
(34)	90th Percentile	34,092,327	28,723,657	23,020,392	16,423,348	9,520,832	1,994,171	(6,694,119)	(13,265,998)	
(35)	95th Percentile	32,901,742	26,150,943	18,806,023	10,363,851	1,455,007	(8,287,867)	(19,400,433)	(27,564,787)	
(36)	99th Percentile	30,284,513	20,508,465	9,556,939	(2,920,748)	(16,196,991)	(30,756,866)	(47,111,358)	(58,692,666)	

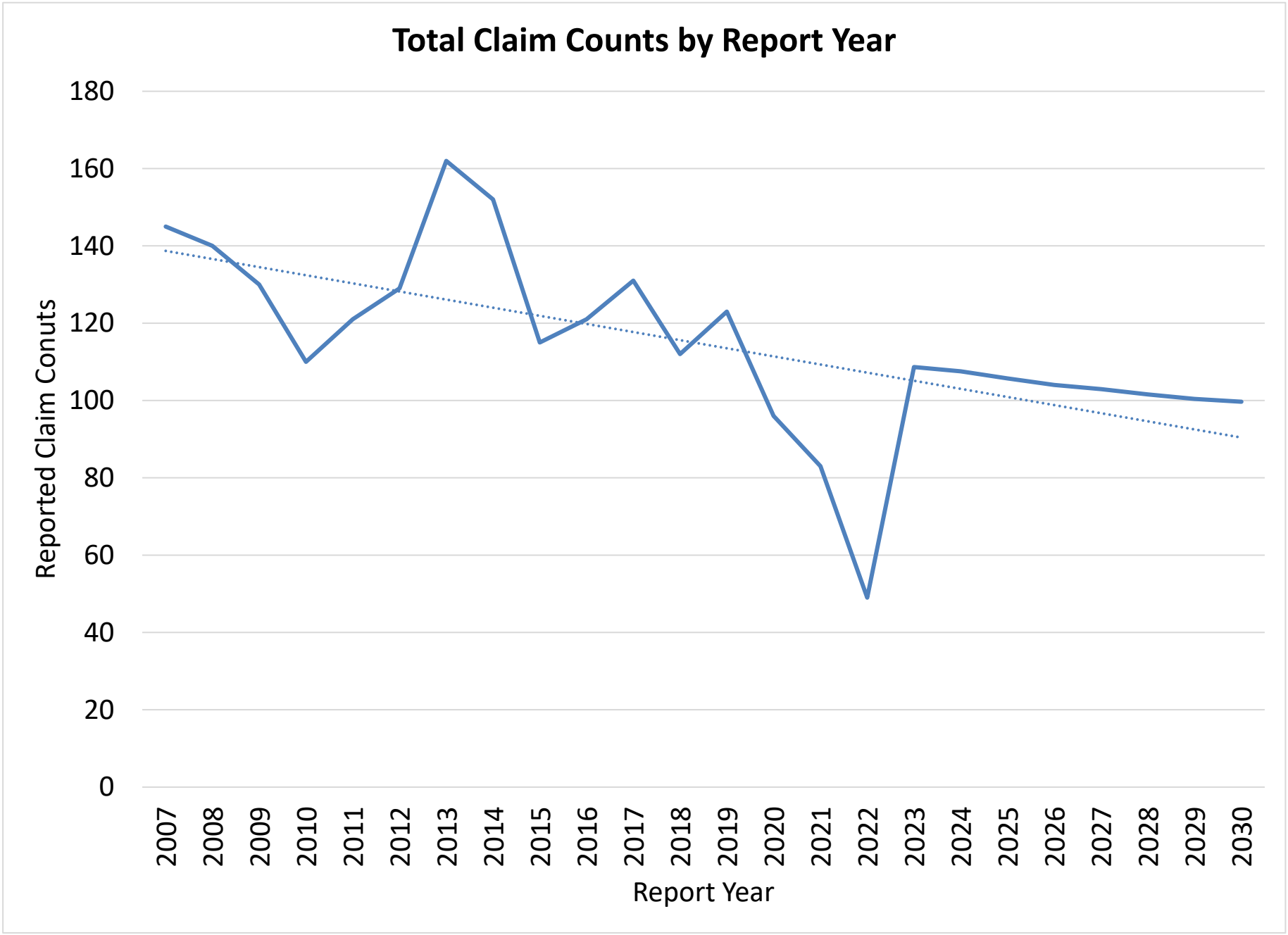
Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

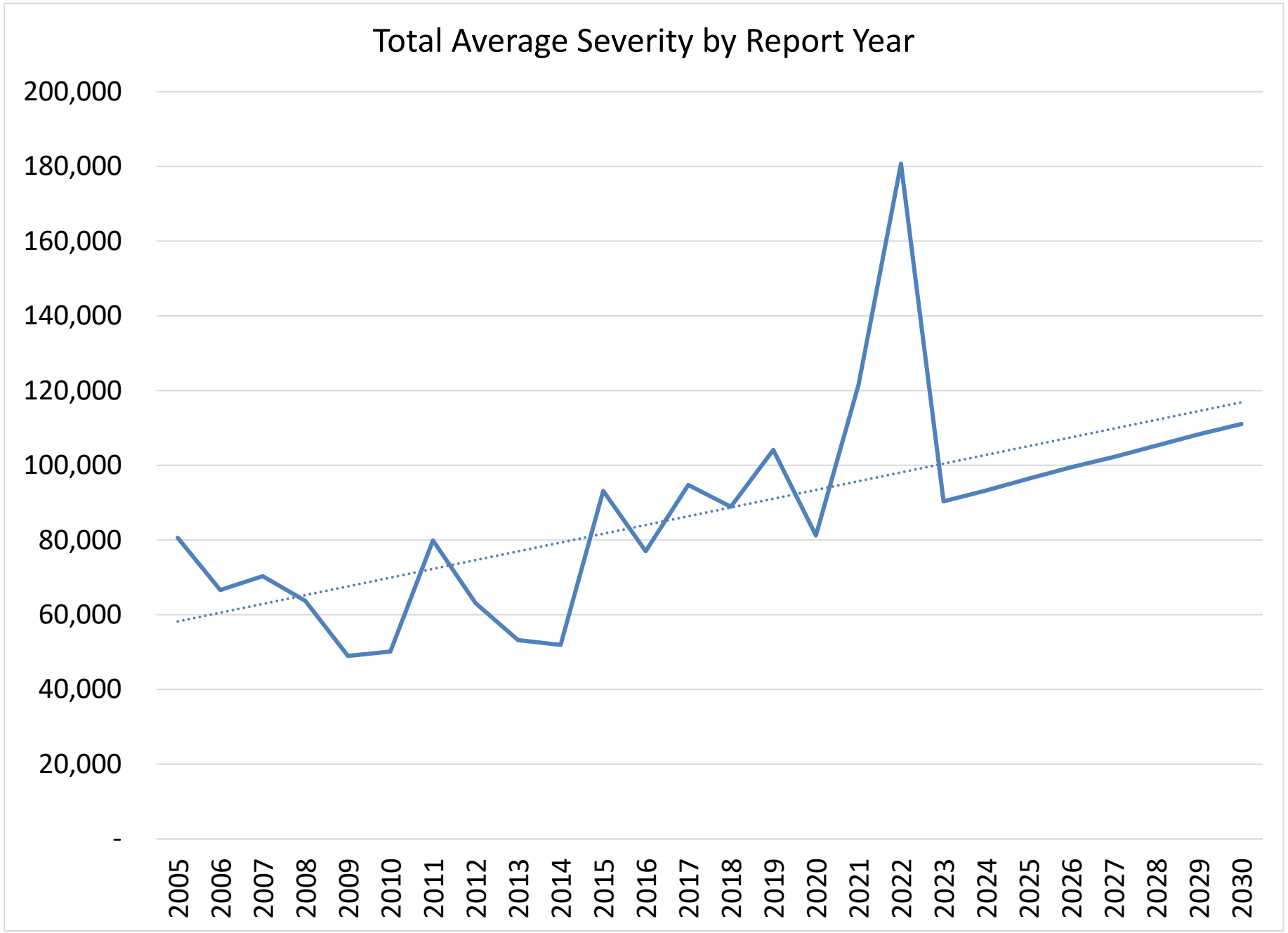
Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Financial Projection Cash Flow Detail

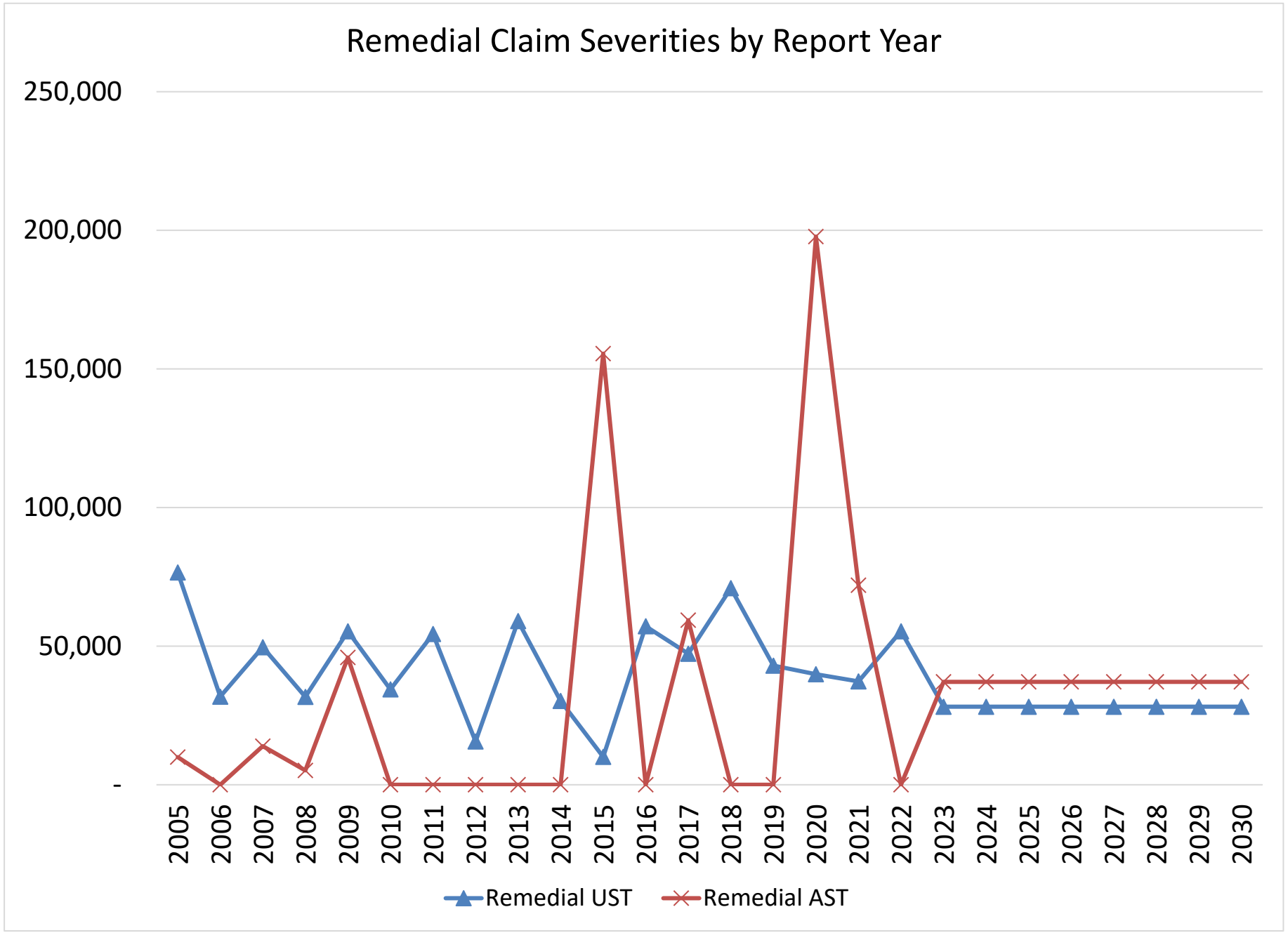
	(A)	(B)	(C)	(D)	(E)	(F)	(I)	(J)	(K)	(L)
		Claim Payments Arising from Current Reserves (Report Years 2022 and Prior)								
		2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(1)	50th Percentile Losses	12,374,509	9,838,064	8,302,509	7,693,755	6,713,492	5,836,345	5,407,636	2,485,104	58,651,415
(2)	75th Percentile Losses	13,864,408	11,018,349	9,284,297	8,606,099	7,502,275	6,503,005	6,018,371	2,761,922	65,558,726
(3)	90th Percentile Losses	15,308,985	12,167,000	10,240,214	9,496,739	8,274,670	7,155,930	6,616,425	3,033,074	72,293,038
(4)	95th Percentile Losses	16,221,067	12,893,307	10,844,604	10,060,675	8,765,045	7,569,538	6,995,255	3,205,162	76,554,652
(5)	99th Percentile Losses	18,221,358	14,481,493	12,164,220	11,286,345	9,819,165	8,458,722	7,806,934	3,573,423	85,811,659
(6)	Mean	12,391,692	9,861,447	8,323,538	7,720,277	6,746,631	5,863,729	5,433,823	2,497,519	58,838,656
		Claim Payments Arising from Future Claims (Report Years 2023 through 12/31/2026)								
		2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(7)	50th Percentile Losses	789,035	1,821,586	2,875,127	3,530,078	4,199,007	4,983,731	5,650,873	2,777,619	26,627,057
(8)	75th Percentile Losses	1,179,093	2,726,133	4,296,802	5,285,263	6,296,543	7,481,242	8,491,693	4,173,891	39,930,661
(9)	90th Percentile Losses	1,606,775	3,711,315	5,858,193	7,205,392	8,593,482	10,216,503	11,605,280	5,706,046	54,502,986
(10)	95th Percentile Losses	1,885,278	4,367,137	6,895,459	8,486,584	10,109,434	12,019,108	13,650,726	6,715,357	64,129,083
(11)	99th Percentile Losses	2,502,216	5,804,200	9,182,448	11,296,429	13,422,714	15,946,926	18,080,972	8,893,553	85,129,459
(12)	Mean	877,783	2,029,062	3,201,229	3,935,721	4,686,447	5,563,306	6,307,621	3,098,944	29,700,112
		Total Projected Claim Payments								
		2023	2024	2025	2026	2027	2028	2029	2030 (1/2)	Totals
(13)	50th Percentile Losses	13,163,544	11,659,650	11,177,636	11,223,834	10,912,499	10,820,075	11,058,509	5,262,723	85,278,472
(14)	75th Percentile Losses	15,043,501	13,744,482	13,581,100	13,891,362	13,798,818	13,984,247	14,510,064	6,935,813	105,489,387
(15)	90th Percentile Losses	16,915,760	15,878,315	16,098,407	16,702,132	16,868,152	17,372,433	18,221,705	8,739,120	126,796,024
(16)	95th Percentile Losses	18,106,345	17,260,444	17,740,063	18,547,259	18,874,480	19,588,646	20,645,981	9,920,519	140,683,736
(17)	99th Percentile Losses	20,723,574	20,285,694	21,346,668	22,582,774	23,241,879	24,405,647	25,887,906	12,466,976	170,941,118
(18)	Mean	13,269,475	11,890,509	11,524,767	11,655,998	11,433,078	11,427,035	11,741,444	5,596,463	88,538,768

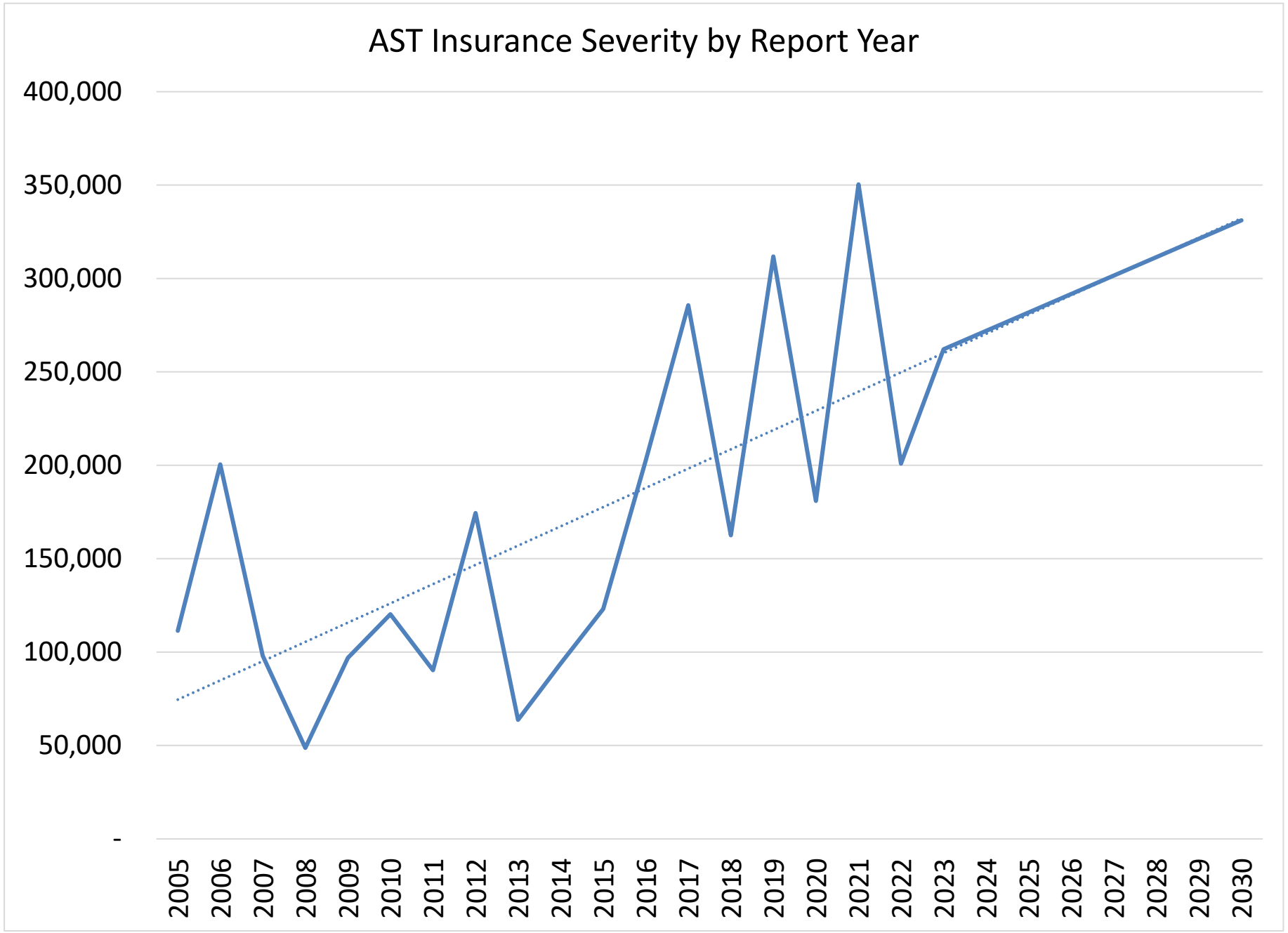

Projected Reported Claim Counts by Claim Type
Reported Claim Counts by Type of Claim
100
90
80
70
60
50
40
30
20
10
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Report Year
Insurance UST - Release
Insurance UST - Closure
Insurance UST - Other
Remedial UST

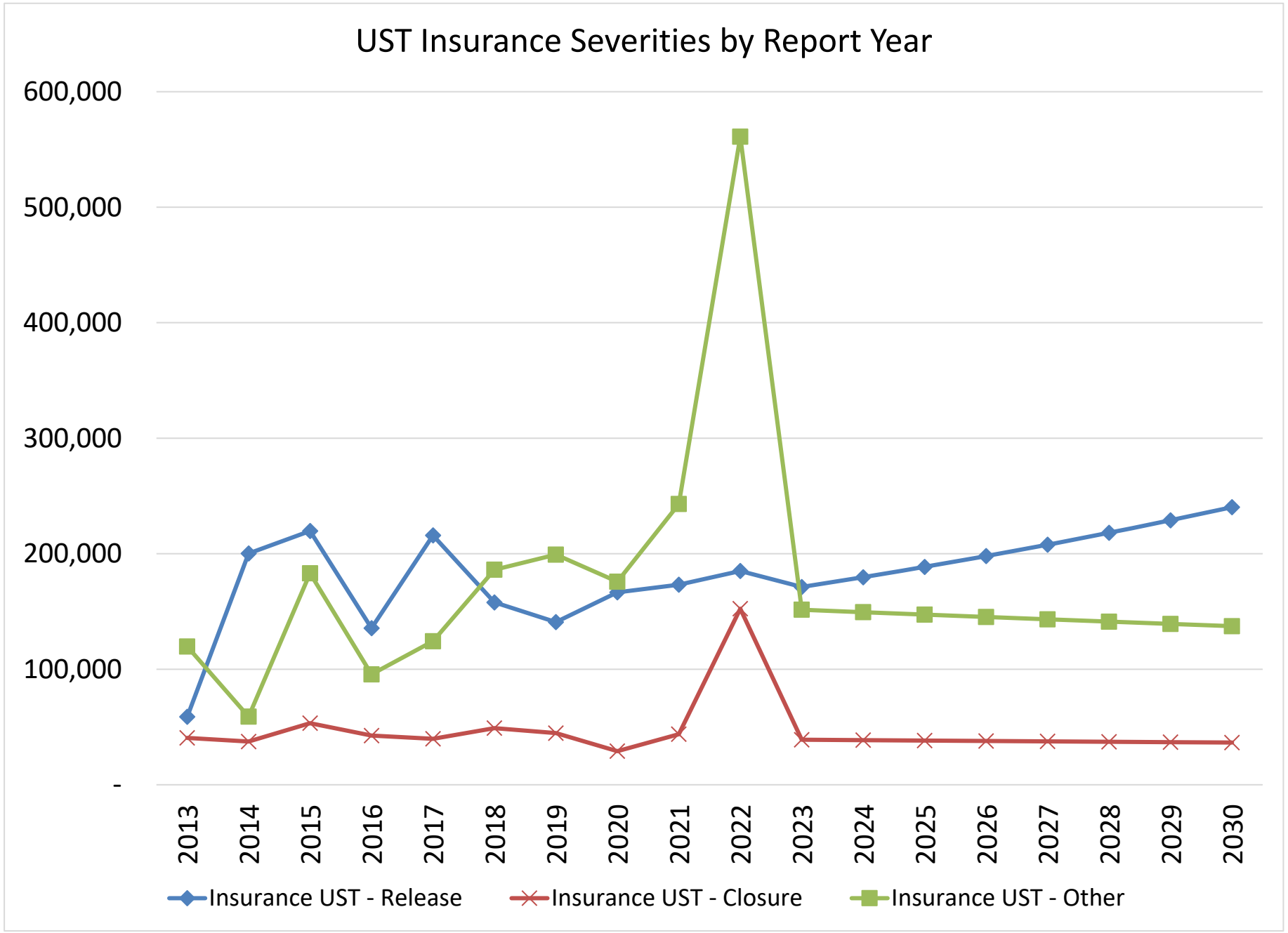

Projected Reported Claim Counts by Claim Type
Reported Claim Counts by Type of Claim
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Report Year
AST Insurance
Remedial AST


Total Claim Counts by Report Year
Reported Claim Conuts
180
160
140
120
100
80
60
40
20
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Report Year


Total Average Severity by Report Year
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
-
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030


Remedial Claim Severities by Report Year
250,000
200,000
150,000
100,000
50,000
-
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Remedial UST
Remedial AST


AST Insurance Severity by Report Year
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
-
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030


UST Insurance Severities by Report Year
600,000
500,000
400,000
300,000
200,000
100,000
-
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Insurance UST - Release
Insurance UST - Closure
Insurance UST - Other

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	UST POLS	REPORTED CLAIM COUNTS			ULTIMATE LOSS SEVERITY			ULTIMATE LOSSES		
RY	IN FORCE	RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER
1998		18	161	39	75,075	37,046	77,074	1,351,348	5,964,475	3,005,904
1999		8	225	20	17,822	42,962	136,137	142,573	9,666,343	2,722,748
2000		26	90	59	69,900	61,981	73,983	1,817,407	5,578,254	4,365,025
2001		23	65	36	47,010	34,212	29,433	1,081,236	2,223,792	1,059,580
2002		19	68	48	37,877	65,061	95,262	719,666	4,424,115	4,572,596
2003		19	73	45	107,598	48,768	75,408	2,044,371	3,560,033	3,393,347
2004		10	68	38	128,293	34,559	122,378	1,282,928	2,350,003	4,650,372
2005		10	53	18	168,558	53,032	119,948	1,685,576	2,810,686	2,159,058
2006		5	54	17	34,060	33,916	183,507	170,299	1,831,452	3,119,616
2007		11	69	20	223,526	59,987	44,483	2,458,782	4,139,122	889,657
2008	2,664	9	73	12	235,464	42,596	191,047	2,119,180	3,109,495	2,292,566
2009	2,662	13	60	24	72,239	35,937	42,740	939,111	2,156,236	1,025,753
2010	2,622	7	56	3	99,596	37,484	81,698	697,174	2,099,122	245,094
2011	2,623	14	42	10	171,983	43,790	223,161	2,407,763	1,839,185	2,231,612
2012	2,617	13	68	7	86,995	39,847	168,991	1,130,935	2,709,577	1,182,938
2013	2,603	7	93	11	58,830	40,588	119,672	411,813	3,774,713	1,316,396
2014	2,573	10	85	11	200,252	37,410	58,949	2,002,519	3,179,890	648,439
2015	2,530	15	51	13	219,677	53,323	183,086	3,295,148	2,719,452	2,380,123
2016	2,509	13	57	16	135,571	42,549	95,558	1,762,422	2,425,317	1,528,931
2017	2,489	9	69	15	215,880	39,769	124,252	1,942,924	2,744,094	1,863,774
2018	2,487	9	61	7	157,880	49,029	186,156	1,420,917	2,990,793	1,303,093
2019	2,413	7	69	12	140,831	44,722	199,202	985,818	3,085,834	2,390,418
2020	2,408	10	49	7	166,597	29,135	175,763	1,665,974	1,427,593	1,230,340
2021	2,405	14	41	5	173,183	43,782	243,000	2,424,567	1,795,059	1,215,000
2022	2,371	13	13	2	185,059	152,448	561,000	2,405,761	1,981,829	1,122,000
2023	2,347	11	58	8	171,195	38,951	151,500	1,911,472	2,272,977	1,205,720
2024	2,324	11	58	8	179,694	38,604	149,379	2,013,113	2,227,945	1,136,341
2025	2,301	11	57	7	188,614	38,257	147,288	2,120,134	2,183,359	1,068,668
2026	2,277	11	56	7	197,978	37,910	145,226	2,232,821	2,139,219	1,002,667
2027	2,254	11	56	7	207,806	37,563	143,193	2,351,470	2,095,524	938,304
2028	2,231	11	55	6	218,122	37,217	141,188	2,476,398	2,052,274	875,547
2029	2,208	11	55	6	228,951	36,870	139,211	2,607,934	2,009,470	814,364
2030	2,185	6	27	3	240,317	36,523	137,262	1,373,213	983,556	377,361

Notes: Future RYs for Cols (2), (6), (7), and (8) are linearly interpolated against report year.
Future RYs for Cols (3), (4), and (5) are linearly interpolated against Col (2).
Col (9) = (3) x (6); Col (10) = (4) x (7); Col (11) = (5) x (8).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST Claims
Projection of Future Frequencies and Severities

(1) RY	(2) AST POLS IN FORCE	(3) REPORTED CLAIMS	(4) ULTIMATE SEVERITY	(5) ULTIMATE LOSS
1998		1	478,042	478,042
1999		7	384,176	2,689,230
2000		13	91,984	1,195,793
2001		24	278,790	6,690,965
2002		18	128,296	2,309,328
2003		21	69,845	1,466,741
2004		21	140,630	2,953,221
2005		19	111,431	2,117,185
2006		11	200,499	2,205,484
2007		12	98,035	1,176,424
2008	517	12	48,721	584,651
2009	563	11	96,940	1,066,343
2010	578	12	120,227	1,442,726
2011	810	13	90,291	1,173,778
2012	975	16	174,412	2,790,595
2013	1,003	23	63,739	1,465,997
2014	1,030	11	93,862	1,032,484
2015	1,021	16	123,082	1,969,319
2016	1,010	11	202,465	2,227,114
2017	1,005	17	285,665	4,856,305
2018	999	20	162,504	3,250,077
2019	989	18	311,770	5,611,851
2020	978	15	180,956	2,714,345
2021	965	12	350,405	4,204,855
2022	942	15	200,920	3,013,800
2023	972	15	262,132	3,968,029
2024	987	15	271,987	4,206,795
2025	995	16	281,843	4,405,643
2026	998	16	291,699	4,583,720
2027	1,000	16	301,555	4,751,006
2028	1,001	16	311,410	4,912,693
2029	1,002	16	321,266	5,071,480
2030	1,002	8	331,122	2,614,383

Notes: Future RYs for Col (2) are increased by a decreasing percentage to a maximum of 1,027 based on assumptions from PSTIF.
Future RYs for Col (3) are linearly interpolated against Col (2).
Col (5) = (3) x (4).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	POTENTIAL SITES		REPORTED CLAIM COUNTS		% REPORTED ON PREV YR		ULTIMATE LOSS SEVERITY		ULTIMATE LOSS	
RY	UST	AST	UST	AST	UST	AST	UST	AST	UST	AST
1998	15,479	2,402	319	12			59,890	55,219	19,105,032	662,628
1999	14,166	2,399	378	11	2.44%	0.46%	22,551	151,415	8,524,204	1,665,560
2000	13,952	2,399	558	50	3.94%	2.08%	29,906	112,810	16,687,360	5,640,481
2001	13,633	2,387	343	204	2.46%	8.50%	9,984	10,399	3,424,412	2,121,367
2002	13,255	2,376	126	18	0.92%	0.75%	26,299	13,305	3,313,700	239,493
2003	12,696	2,327	39	4	0.29%	0.17%	29,933	138,806	1,167,396	555,224
2004	12,354	2,123	62	13	0.49%	0.56%	37,305	159,585	2,312,921	2,074,609
2005	12,228	2,105	38	8	0.31%	0.38%	76,602	9,980	2,910,891	79,838
2006	12,189	2,101	21	12	0.17%	0.57%	31,800	-	667,805	-
2007	12,129	2,088	30	3	0.25%	0.14%	49,622	13,917	1,488,652	41,750
2008	12,021	2,055	24	10	0.20%	0.48%	31,704	5,179	760,887	51,787
2009	12,003	2,051	18	4	0.15%	0.19%	55,357	45,914	996,432	183,657
2010	11,973	2,049	30	2	0.25%	0.10%	34,398	-	1,031,949	-
2011	11,936	2,044	37	5	0.31%	0.24%	54,389	-	2,012,378	-
2012	11,915	2,040	21	4	0.18%	0.20%	15,613	-	327,880	-
2013	11,887	2,040	28		0.23%	0.00%	59,042	-	1,653,169	-
2014	11,853	2,039	34	1	0.29%	0.05%	30,231	-	1,027,863	-
2015	11,834	2,038	19	1	0.16%	0.05%	10,075	155,510	191,429	155,510
2016	11,810	2,038	24		0.20%	0.00%	57,184	-	1,372,408	-
2017	11,790	2,037	20	1	0.17%	0.05%	47,266	59,359	945,330	59,359
2018	11,776	2,036	14	1	0.12%	0.05%	70,919	-	992,871	-
2019	11,759	2,036	17		0.14%	0.00%	42,970	-	730,484	-
2020	11,745	2,035	14	1	0.12%	0.05%	39,871	197,752	558,188	197,752
2021	11,735	2,034	10	1	0.09%	0.05%	37,276	71,962	372,758	71,962
2022	11,729	2,034	6		0.05%	0.00%	55,365	-	332,189	-
2023	11,714	2,033	15	1	0.13%	0.03%	28,155	37,114	433,787	23,162
2024	11,699	2,033	15	1	0.13%	0.03%	28,155	37,114	421,289	21,423
2025	11,685	2,032	14	1	0.12%	0.03%	28,155	37,114	389,847	24,094
2026	11,672	2,032	13	1	0.11%	0.03%	28,155	37,114	368,418	22,471
2027	11,659	2,031	13	1	0.11%	0.03%	28,155	37,114	365,230	20,646
2028	11,646	2,030	12	1	0.11%	0.03%	28,155	37,114	351,194	23,220
2029	11,634	2,030	12	1	0.11%	0.03%	28,155	37,114	345,873	21,488
2030	11,628	2,030	6	0	0.05%	0.01%	28,155	37,114	176,918	9,770

Notes: Future RYs for Cols (2) and (3) are [prior year sites] x (1 - [% reported from col (6) or (7)])
Future RYs for Cols (4) and (5) are the change in Cols (2) and (3), respectively.
Future RYs for Cols (6) and (7) are rolling average of prior 10 years.
Future RYs for Cols (8) and (9) are long-term averages from 1999-2022

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
Cash Flow Summary

UNDISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

Category	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	After 2031
Insurance UST - Release	13,914,784	1,727,980	1,489,012	1,249,540	1,210,297	1,111,432	889,496	800,930	809,757	748,873	3,877,466
Insurance UST - Closure	16,305,797	3,133,548	2,264,057	1,829,350	1,542,579	1,088,116	886,543	771,826	683,095	609,266	3,497,417
Insurance UST - Other	13,785,002	2,388,015	1,621,848	1,300,463	1,180,670	1,111,146	822,310	809,307	672,750	628,642	3,249,849
Remedial UST	19,899,824	2,182,215	1,859,704	1,667,896	1,610,734	1,597,322	1,512,725	1,461,123	1,439,620	1,399,130	5,169,355
Insurance AST	22,495,166	2,864,729	2,465,493	2,073,148	1,974,992	1,637,116	1,539,747	1,378,735	1,170,799	1,111,099	6,279,308
Remedial AST	2,284,485	95,205	161,332	203,141	201,004	201,500	212,908	211,902	219,016	209,582	568,895
Total	88,685,057	12,391,692	9,861,447	8,323,538	7,720,277	6,746,631	5,863,729	5,433,823	4,995,038	4,706,593	22,642,289
Percent of Current Total Paid by Year - Undiscounted	100.0%	14.0%	11.1%	9.4%	8.7%	7.6%	6.6%	6.1%	5.6%	5.3%	25.5%

DISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

Category	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	After 2031
Insurance UST - Release	12,922,804	1,718,297	1,464,120	1,214,920	1,163,613	1,056,619	836,177	744,506	744,299	680,644	3,299,608
Insurance UST - Closure	15,361,684	3,115,988	2,226,208	1,778,665	1,483,078	1,034,453	833,402	717,452	627,876	553,756	2,990,804
Insurance UST - Other	12,907,040	2,374,633	1,594,736	1,264,433	1,135,129	1,056,347	773,019	752,293	618,367	571,367	2,766,716
Remedial UST	18,524,292	2,169,987	1,828,615	1,621,684	1,548,604	1,518,546	1,422,049	1,358,189	1,323,246	1,271,656	4,461,716
Insurance AST	20,854,137	2,848,676	2,424,278	2,015,709	1,898,811	1,556,378	1,447,451	1,281,605	1,076,155	1,009,868	5,295,206
Remedial AST	2,124,994	94,671	158,635	197,513	193,251	191,562	200,146	196,974	201,312	190,487	500,442
Total	82,694,951	12,322,253	9,696,593	8,092,924	7,422,487	6,413,905	5,512,244	5,051,020	4,591,255	4,277,778	19,314,492
Percent of Current Total Paid by Year - Discounted	100.0%	14.9%	11.7%	9.8%	9.0%	7.8%	6.7%	6.1%	5.6%	5.2%	23.4%

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
ALAE Provision

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	PAID	INCURRED	PAID	ALAE PER $10K	CASE		ALAE	ULTIMATE
RY	LOSS	LOSS	ALAE	PAID LOSS	RESERVE	IBNR	UNPAID	ALAE
1994	3,955,065	4,833,656	6,700	16.94	878,592	-	5,265	11,965
1995	4,187,026	4,387,026	9,365	22.37	200,000	-	1,198	10,563
1996	71,034,420	77,123,906	135,311	19.05	6,089,486	-	36,490	171,801
1997	18,583,061	19,225,269	43,792	23.57	642,208	-	3,848	47,641
1998	28,090,019	30,567,429	86,311	30.73	2,477,410	-	14,845	101,157
1999	23,832,241	25,401,575	77,074	32.34	1,569,334	9,082	9,458	86,533
2000	31,041,263	35,101,495	91,063	29.34	4,060,232	182,826	25,426	116,489
2001	14,276,854	16,565,438	55,475	38.86	2,288,584	35,913	13,929	69,404
2002	14,189,282	15,457,763	48,870	34.44	1,268,481	121,134	8,327	57,197
2003	11,362,589	12,122,596	56,208	49.47	760,007	64,516	4,941	61,148
2004	14,130,494	15,409,732	138,516	98.03	1,279,239	214,321	8,950	147,465
2005	9,682,586	11,511,580	109,961	113.57	1,828,994	251,653	12,468	122,428
2006	6,746,480	7,757,909	65,981	97.80	1,011,429	236,747	7,479	73,460
2007	9,333,161	9,863,195	98,420	105.45	530,033	331,193	5,161	103,581
2008	7,907,463	8,476,413	40,027	50.62	568,950	442,152	6,059	46,085
2009	5,472,488	5,830,614	29,703	54.28	358,125	536,917	5,363	35,066
2010	3,680,087	5,102,915	31,464	85.50	1,422,828	413,150	11,002	42,466
2011	6,951,367	8,689,592	35,193	50.63	1,738,225	975,124	16,259	51,452
2012	6,568,760	7,215,547	33,080	50.36	646,787	926,378	9,427	42,507
2013	6,274,144	7,355,444	29,178	46.50	1,081,300	1,266,643	14,070	43,247
2014	4,759,328	6,713,948	26,993	56.72	1,954,620	1,177,247	18,767	45,760
2015	7,249,090	9,111,728	45,559	62.85	1,862,638	1,599,254	20,745	66,304
2016	5,523,535	7,574,601	25,262	45.73	2,051,067	1,741,589	22,727	47,988
2017	6,716,803	10,229,880	40,546	60.36	3,513,077	2,181,905	34,126	74,672
2018	4,682,403	7,860,967	25,852	55.21	3,178,565	2,096,782	31,612	57,464
2019	5,277,828	9,735,018	36,075	68.35	4,457,190	3,069,387	45,102	81,177
2020	1,642,480	4,493,547	16,080	97.90	2,851,066	3,300,644	36,863	52,943
2021	1,410,865	5,414,433	14,197	100.63	4,003,568	4,669,768	51,973	66,170
2022	634,676	3,349,546	11,228	176.91	2,714,870	5,553,826	49,549	60,777
TOTAL ALL YEARS	335,195,859	392,482,763	1,463,483	43.66	57,286,904	31,398,154	531,429	1,994,912

Wtd. Average 2012-2020	57.22
Wtd. Average 2012-2022	59.92
Straight Average All Years	61.19
Weighted Average All Years	43.66

SELECTED RATIO	**59.92**

Notes:
Col (5) = (4) / (3) x 10,000
Col (8) = [(6) + (7)] x Selected Ratio / 10,000
Col (9) = (8) + (4)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
All Claim Types
ULAE Provision

(1) FISCAL YEAR	(2) FUND ADMIN FEES	(3) FY PAID LOSS	(4) AVERAGE FEES PER CY PAID
2006	2,895,762	12,847,713	0.246
2007	3,087,143	12,185,369	0.276
2008	3,124,118	15,806,387	0.216
2009	3,456,283	16,148,518	0.233
2010	3,289,570	14,134,856	0.254
2011	3,185,415	11,632,025	0.299
2012	3,188,828	12,461,529	0.279
2013	3,043,682	10,845,847	0.306
2014	3,116,377	10,116,592	0.336
2015	3,207,502	12,588,056	0.278
2016	3,255,111	13,762,021	0.258
2017	3,325,325	15,115,087	0.240
2018	3,176,324	13,127,399	0.264
2019	3,075,361	13,820,330	0.243
2020	2,835,776	11,260,319	0.275
2021	2,577,708	8,741,496	0.322
2022	2,828,920	8,981,440	0.344
Total	52,669,206	213,574,984	0.247

(7) 3-Year Average	0.313
(8) 5-Year Average	0.289
(9) 10-Year ex. Hi/Lo	0.285
(10) Selected	0.285
(11) [Case O/S + IBNR] x 70%	62,079,540
(12) ULAE IBNR = (10) x (11)	17,702,969
(13) Discount	1,195,722
(14) Discounted ULAE IBNR = (12) - (13)	16,507,247

Note: Total row in Column (4) reflects a weighted average.
FY 2022 value in Column (4) is adjusted to reflect a full year of data.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,281,996	2,176,370	894,374	-	894,374
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,388,630	1,338,666	1,351,348	12,682	37,282	49,964
1999	142,573	142,573	142,573	-	-	-
2000	1,826,990	1,758,542	1,817,407	58,865	9,583	68,448
2001	1,081,236	1,026,765	1,081,236	54,471	-	54,471
2002	719,666	634,837	719,666	84,828	-	84,828
2003	2,074,480	1,969,276	2,044,371	75,095	30,109	105,204
2004	1,317,493	1,242,288	1,283,109	40,820	34,384	75,204
2005	1,682,156	971,431	1,682,156	710,724	-	710,724
2006	176,129	161,243	168,243	7,000	7,886	14,886
2007	2,635,693	2,353,741	2,398,612	44,871	237,081	281,952
2008	2,191,454	1,893,642	2,034,991	141,349	156,462	297,812
2009	922,274	783,624	879,624	96,000	42,650	138,650
2010	676,953	378,913	676,953	298,040	-	298,040
2011	2,644,675	2,002,952	2,191,528	188,576	453,148	641,723
2012	1,157,711	856,110	966,601	110,491	191,111	301,602
2013	302,019	210,187	256,528	46,341	45,491	91,832
2014	2,074,072	1,332,249	1,662,972	330,723	411,100	741,823
2015	3,815,648	2,333,718	2,859,888	526,170	955,760	1,481,929
2016	1,851,216	1,081,888	1,406,288	324,400	444,928	769,329
2017	2,176,431	1,133,161	1,414,084	280,923	762,347	1,043,270
2018	1,286,494	569,047	998,234	429,187	288,261	717,447
2019	707,800	265,564	519,267	253,703	188,533	442,236
2020	1,165,659	340,637	1,165,659	825,022	-	825,022
2021	1,505,338	297,198	1,454,650	1,157,452	50,688	1,208,140
2022	3,103,286	267,545	978,786	711,241	2,124,500	2,835,741
TOTAL	43,286,986	29,112,335	36,815,684	7,703,349	6,471,302	14,174,651

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	1.131	1.120	1.000	1.000	1.000
1995					1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044	1.013	1.008	1.060	1.030	1.005	1.027	1.043
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008	1.002	1.002	1.010	1.000	1.000	1.000	1.000	1.000	1.000
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009	1.044	1.013	1.000	1.017	1.011	1.005	1.000	1.000	1.000
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028	1.040	1.000	1.006	1.005	1.008	1.007	1.000	1.002	1.000	1.000	1.000
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.045	1.091	1.000	1.010	1.083	1.052	1.040	1.030	1.020	1.017	1.003	1.008	1.002	1.004	1.002	1.000	1.000	1.000
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047	1.000	1.003	1.012	1.015	1.002	1.012	1.000	1.006	1.004	1.002	1.000	1.000	1.000
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046	1.043	1.033	1.064	1.075	1.056	1.037	1.017	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.121	1.050	1.255	1.147	1.097	1.229	1.068	1.024	1.022	1.016	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137	1.032	1.314	1.099	1.031	1.057	1.021	1.034	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2006		1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369	1.067	1.211	1.120	1.145	1.000	1.000	1.000	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010	1.170	1.034	1.022	1.013	1.001	1.007	1.003	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093	1.155	1.059	1.027	1.037	1.009	1.003	1.014	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2009	4.004	1.255	1.467	1.039	1.050	1.036	1.017	1.024	1.055	1.052	1.002	1.000	1.000	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2010	17.254	1.587	1.461	1.027	1.217	1.072	1.205	1.049	1.050	1.141	1.016	1.266	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2011	5.534	1.347	1.215	1.179	1.094	1.119	1.021	1.044	1.031	1.022	1.015	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2012	3.464	2.126	1.414	1.190	1.404	1.089	1.087	1.085	1.067	1.011	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2013	1.409	1.931	1.151	1.115	1.446	1.219	1.045	1.015	1.000	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2014	19.137	1.226	1.156	1.068	1.098	1.037	1.024	1.049	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2015	5.264	1.996	1.271	1.149	1.101	1.113	1.056	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2016	28.197	1.598	1.317	1.397	1.096	1.233	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2017	1.359	1.163	1.067	1.041	1.031	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2018	9.001	2.419	1.204	1.233	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2019	6.552	2.010	1.171	1.179	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2020	9.425	2.737	1.215	1.179	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2021		1.564	1.215	1.179	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000
2022	2.290	1.564	1.215	1.179	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	43,694	43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724	220,213	246,661	246,661	246,661
1995	-	-	-	-	15,175	20,605	32,780	51,312	82,297	93,282	111,391	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112	1,082,062	1,090,678	1,155,906	1,190,251	1,196,571	1,228,820
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764	1,976,544	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074	1,280,060	1,296,308	1,296,308	1,318,514	1,332,502	1,338,666	1,338,666	1,338,666
1999	-	12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	98,894	103,964	139,096	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573
2000	-	140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008	1,715,267	1,715,267	1,724,971	1,733,353	1,746,733	1,758,542	1,758,542	1,761,254	1,761,254	1,761,254
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396	948,559	976,545	996,294	1,012,739	1,016,169	1,024,716	1,026,765	1,030,395	1,031,984	1,031,984	1,031,984
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282	607,282	609,321	616,509	625,847	627,301	634,837	634,837	638,526	640,784	641,772	641,772	641,772
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580	1,497,429	1,546,971	1,645,324	1,768,175	1,867,367	1,936,684	1,969,276	1,978,229	1,989,724	1,996,760	1,999,838	1,999,838	1,999,838
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282	811,449	890,246	1,094,026	1,168,514	1,196,043	1,222,862	1,242,288	1,250,678	1,256,364	1,263,664	1,268,133	1,270,088	1,270,088	1,270,088
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691	584,630	768,192	844,136	870,365	920,393	939,452	971,431	982,497	989,132	993,628	999,402	1,002,936	1,004,483	1,004,483	1,004,483
2006	-	8,947	8,947	8,947	57,884	67,789	71,084	71,084	71,084	97,281	103,765	125,694	140,820	161,243	161,243	161,243	161,243	164,205	166,075	167,197	167,957	168,933	169,530	169,792	169,792	169,792
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776	2,174,856	2,247,778	2,297,257	2,327,742	2,329,809	2,345,987	2,353,741	2,412,936	2,457,254	2,485,244	2,502,028	2,513,402	2,528,007	2,536,947	2,540,858	2,540,858	2,540,858
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026	1,636,341	1,733,534	1,780,630	1,845,959	1,861,871	1,867,753	1,893,642	1,957,024	2,006,242	2,043,090	2,066,362	2,080,318	2,089,775	2,101,918	2,109,351	2,112,603	2,112,603	2,112,603
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540	688,297	704,856	743,523	781,868	783,624	783,624	783,624	796,940	823,614	844,328	859,835	869,629	875,502	879,482	884,593	887,721	889,090	889,090	889,090
2010	3,627	62,582	99,320	145,127	148,993	181,398	194,452	234,328	245,727	258,129	294,609	299,192	378,913	397,335	404,087	417,612	428,115	435,978	440,944	443,922	445,940	448,531	450,117	450,811	450,811	450,811
2011	134,434	743,915	1,002,304	1,217,775	1,435,417	1,569,874	1,756,333	1,793,765	1,872,292	1,930,245	1,973,544	2,002,952	2,142,901	2,247,089	2,285,272	2,361,762	2,421,160	2,465,628	2,493,714	2,510,555	2,521,968	2,536,623	2,545,593	2,549,518	2,549,518	2,549,518
2012	35,519	123,028	261,546	369,814	440,068	617,743	673,028	731,313	793,679	847,115	856,110	876,796	938,059	983,667	1,000,382	1,033,866	1,059,867	1,079,333	1,091,628	1,099,000	1,103,996	1,110,411	1,114,338	1,116,056	1,116,056	1,116,056
2013	32,189	45,369	87,594	100,842	112,450	162,643	198,229	207,067	210,187	210,187	223,338	228,735	244,717	256,615	260,976	269,711	276,494	281,572	284,780	286,703	288,006	289,680	290,704	291,152	291,152	291,152
2014	37,615	719,825	882,491	1,019,963	1,088,861	1,195,738	1,239,479	1,269,589	1,332,249	1,443,431	1,533,744	1,570,804	1,680,559	1,762,267	1,792,212	1,852,199	1,898,781	1,933,655	1,955,681	1,968,889	1,977,840	1,989,332	1,996,367	1,999,445	1,999,445	1,999,445
2015	117,585	618,928	1,235,365	1,569,832	1,803,486	1,985,126	2,210,171	2,333,718	2,450,924	2,655,465	2,821,612	2,889,791	3,091,705	3,242,023	3,297,113	3,407,471	3,493,167	3,557,325	3,597,845	3,622,143	3,638,610	3,659,753	3,672,695	3,678,358	3,678,358	3,678,358
2016	9,664	272,486	435,421	573,268	800,813	877,440	1,081,888	1,132,237	1,189,101	1,288,337	1,368,946	1,402,024	1,499,985	1,572,914	1,599,642	1,653,184	1,694,760	1,725,887	1,745,546	1,757,335	1,765,324	1,775,582	1,781,861	1,784,608	1,784,608	1,784,608
2017	626,145	851,011	989,479	1,055,893	1,098,659	1,133,161	1,271,950	1,331,144	1,397,998	1,514,667	1,609,437	1,648,326	1,763,497	1,849,238	1,880,661	1,943,608	1,992,489	2,029,085	2,052,197	2,066,057	2,075,449	2,087,509	2,094,891	2,098,121	2,098,121	2,098,121
2018	17,593	158,351	383,046	461,344	569,047	669,815	751,853	786,843	826,360	895,324	951,343	974,330	1,042,408	1,093,090	1,111,664	1,148,872	1,177,766	1,199,398	1,213,060	1,221,252	1,226,804	1,233,933	1,238,296	1,240,205	1,240,205	1,240,205
2019	17,223	112,834	226,791	265,564	313,077	368,517	413,652	432,903	454,645	492,587	523,407	536,054	573,509	601,393	611,612	632,083	647,980	659,881	667,398	671,905	674,960	678,882	681,282	682,333	682,333	682,333
2020	13,204	124,444	340,637	414,000	488,070	574,498	644,862	674,873	708,767	767,917	815,964	835,680	894,070	937,540	953,471	985,385	1,010,167	1,028,720	1,040,438	1,047,464	1,052,226	1,058,340	1,062,083	1,063,721	1,063,721	1,063,721
2021	-	297,198	464,712	564,798	665,847	783,756	879,750	920,692	966,931	1,047,626	1,113,174	1,140,072	1,219,731	1,279,034	1,300,768	1,344,306	1,378,114	1,403,426	1,419,412	1,428,998	1,435,494	1,443,835	1,448,941	1,451,175	1,451,175	1,451,175
2022	267,545	612,680	958,013	1,164,342	1,372,658	1,615,729	1,813,622	1,898,025	1,993,349	2,159,703	2,294,832	2,350,282	2,514,500	2,636,754	2,681,559	2,771,314	2,841,011	2,893,191	2,926,146	2,945,908	2,959,300	2,976,496	2,987,022	2,991,627	2,991,627	2,991,627

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	1.131	1.120	1.000
1995					1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044	1.013	1.008	1.060	1.030	1.005
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008	1.002	1.002	1.010	1.000	1.000	1.000	1.000
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009	1.044	1.013	1.000	1.017	1.011	1.005	1.000
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028	1.040	1.000	1.006	1.005	1.008	1.007	1.000		
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.045	1.091	1.000	1.010	1.083	1.052	1.040	1.030	1.020	1.017	1.003	1.008	1.002			
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047	1.000	1.003	1.012	1.015	1.002	1.012	1.000				
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046	1.043	1.033	1.064	1.075	1.056	1.037	1.017					
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.121	1.050	1.255	1.147	1.097	1.229	1.068	1.024	1.022	1.016						
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137	1.032	1.314	1.099	1.031	1.057	1.021	1.034							
2006		1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369	1.067	1.211	1.120	1.145	1.000	1.000	1.000								
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010	1.170	1.034	1.022	1.013	1.001	1.007	1.003									
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093	1.155	1.059	1.027	1.037	1.009	1.003	1.014										
2009	4.004	1.255	1.467	1.039	1.050	1.036	1.017	1.024	1.055	1.052	1.002	1.000	1.000											
2010	17.254	1.587	1.461	1.027	1.217	1.072	1.205	1.049	1.050	1.141	1.016	1.266												
2011	5.534	1.347	1.215	1.179	1.094	1.119	1.021	1.044	1.031	1.022	1.015													
2012	3.464	2.126	1.414	1.190	1.404	1.089	1.087	1.085	1.067	1.011														
2013	1.409	1.931	1.151	1.115	1.446	1.219	1.045	1.015	1.000															
2014	19.137	1.226	1.156	1.068	1.098	1.037	1.024	1.049																
2015	5.264	1.996	1.271	1.149	1.101	1.113	1.056																	
2016	28.197	1.598	1.317	1.397	1.096	1.233																		
2017	1.359	1.163	1.067	1.041	1.031																			
2018	9.001	2.419	1.204	1.233																				
2019	6.552	2.010	1.171																					
2020	9.425	2.737																						
2021																								
VOL WTD 3	17.566	2.402	1.115	1.181	1.079	1.117	1.045	1.058	1.039	1.029	1.012	1.033	1.002	1.010	1.017	1.021	1.040	1.024	1.012	1.006	1.005	1.004	1.002	1.001
VOL WTD 5	2.290	1.564	1.201	1.145	1.092	1.117	1.042	1.051	1.042	1.032	1.021	1.026	1.018	1.045	1.038	1.039	1.034	1.018	1.010	1.005	1.006	1.013	1.013	1.001
VOL WTD ALL	3.097	1.464	1.227	1.179	1.145	1.113	1.070	1.077	1.091	1.057	1.039	1.070	1.040	1.029	1.036	1.042	1.020	1.017	1.014	1.007	1.008	1.016	1.013	1.001
ARITH 3	7.988	2.389	1.147	1.224	1.076	1.128	1.042	1.050	1.033	1.058	1.011	1.092	1.001	1.007	1.020	1.015	1.038	1.018	1.011	1.005	1.003	1.004	1.002	1.001
ARITH 5	6.584	1.985	1.206	1.177	1.154	1.138	1.047	1.048	1.041	1.051	1.018	1.082	1.050	1.056	1.038	1.026	1.030	1.015	1.007	1.003	1.016	1.029	1.026	1.001
ARITH ALL	7.686	1.642	1.485	1.452	1.188	1.145	1.104	1.110	1.111	1.074	1.061	1.129	1.073	1.033	1.050	1.037	1.019	1.023	1.024	1.004	1.016	1.029	1.026	1.001
5 YR HI LO	7.776	2.009	1.215	1.150	1.098	1.141	1.042	1.047	1.045	1.034	1.017	1.047	1.034	1.017	1.041	1.019	1.026	1.013	1.007	1.003	1.003	1.004	1.002	NA
7 YR HI LO	7.560	1.850	1.191	1.151	1.158	1.122	1.047	1.050	1.053	1.040	1.024	1.111	1.049	1.017	1.033	1.025	1.018	1.015	1.007	1.005	1.004	1.004	1.002	1.000
ALL YR HI LO	6.991	1.603	1.323	1.255	1.177	1.121	1.079	1.071	1.083	1.063	1.041	1.113	1.046	1.017	1.030	1.033	1.015	1.011	1.009	1.005	1.004	1.004	1.002	1.000
SELECTED	2.290	1.564	1.215	1.179	1.177	1.122	1.047	1.050	1.083	1.063	1.024	1.070	1.049	1.017	1.033	1.025	1.018	1.011	1.007	1.005	1.006	1.004	1.002	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	-	-	43,694	43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724	220,213	246,661
1995	-	-	-	-	15,175	20,605	32,780	51,312	82,297	93,282	111,391	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	241,953	241,953	241,953
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112	1,082,062	1,090,678	1,155,906	1,190,251
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764	1,976,544	1,995,927	1,995,927	1,995,927	1,995,927
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074	1,280,060	1,296,308	1,296,308	1,318,514	1,332,502	1,338,666
1999	-	12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	98,894	103,964	139,096	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573
2000	-	140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008	1,715,267	1,715,267	1,724,971	1,733,353	1,746,733	1,758,542	1,758,542	
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396	948,559	976,545	996,294	1,012,739	1,016,169	1,024,716	1,026,765		
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282	607,282	609,321	616,509	625,847	627,301	634,837	634,837			
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580	1,497,429	1,546,971	1,645,324	1,768,175	1,867,367	1,936,684	1,969,276				
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282	811,449	890,246	1,094,026	1,168,514	1,196,043	1,222,862	1,242,288					
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691	584,630	768,192	844,136	870,365	920,393	939,452	971,431						
2006	-	8,947	8,947	8,947	57,884	67,789	71,084	71,084	71,084	97,281	103,765	125,694	140,820	161,243	161,243	161,243	161,243							
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776	2,174,856	2,247,778	2,297,257	2,327,742	2,329,809	2,345,987	2,353,741								
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026	1,636,341	1,733,534	1,780,630	1,845,959	1,861,871	1,867,753	1,893,642									
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540	688,297	704,856	743,523	781,868	783,624	783,624	783,624										
2010	3,627	62,582	99,320	145,127	148,993	181,398	194,452	234,328	245,727	258,129	294,609	299,192	378,913											
2011	134,434	743,915	1,002,304	1,217,775	1,435,417	1,569,874	1,756,333	1,793,765	1,872,292	1,930,245	1,973,544	2,002,952												
2012	35,519	123,028	261,546	369,814	440,068	617,743	673,028	731,313	793,679	847,115	856,110													
2013	32,189	45,369	87,594	100,842	112,450	162,643	198,229	207,067	210,187	210,187														
2014	37,615	719,825	882,491	1,019,963	1,088,861	1,195,738	1,239,479	1,269,589	1,332,249															
2015	117,585	618,928	1,235,365	1,569,832	1,803,486	1,985,126	2,210,171	2,333,718																
2016	9,664	272,486	435,421	573,268	800,813	877,440	1,081,888																	
2017	626,145	851,011	989,479	1,055,893	1,098,659	1,133,161																		
2018	17,593	158,351	383,046	461,344	569,047																			
2019	17,223	112,834	226,791	265,564																				
2020	13,204	124,444	340,637																					
2021	-	297,198																						
2022	267,545																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,281,996	2,176,370	894,374	-	894,374
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,351,348	1,338,666	1,351,348	12,682	-	12,682
1999	142,573	142,573	142,573	-	-	-
2000	1,817,407	1,758,542	1,817,407	58,865	-	58,865
2001	1,081,236	1,026,765	1,081,236	54,471	-	54,471
2002	719,666	634,837	719,666	84,828	-	84,828
2003	2,044,371	1,969,276	2,044,371	75,095	-	75,095
2004	1,282,928	1,242,288	1,283,109	40,820	(181)	40,639
2005	1,685,576	971,431	1,682,156	710,724	3,420	714,145
2006	170,299	161,243	168,243	7,000	2,056	9,056
2007	2,458,782	2,353,741	2,398,612	44,871	60,170	105,042
2008	2,119,180	1,893,642	2,034,991	141,349	84,188	225,538
2009	936,903	783,624	879,624	96,000	57,279	153,279
2010	723,114	378,913	676,953	298,040	46,162	344,202
2011	2,415,635	2,002,952	2,191,528	188,576	224,107	412,683
2012	1,071,428	856,110	966,601	110,491	104,827	215,318
2013	290,855	210,187	256,528	46,341	34,326	80,667
2014	1,930,966	1,332,249	1,662,972	330,723	267,993	598,717
2015	3,393,057	2,333,718	2,859,888	526,170	533,169	1,059,339
2016	1,737,370	1,081,888	1,406,288	324,400	331,082	655,482
2017	1,865,134	1,133,161	1,414,084	280,923	451,050	731,973
2018	1,382,980	569,047	998,234	429,187	384,747	813,933
2019	792,558	265,564	519,267	253,703	273,291	526,994
2020	1,928,375	340,637	1,165,659	825,022	762,716	1,587,738
2021	2,810,403	297,198	1,454,650	1,157,452	1,355,752	2,513,205
2022	3,165,131	267,545	978,786	711,241	2,186,344	2,897,585
TOTAL	43,978,184	29,112,335	36,815,684	7,703,349	7,162,500	14,865,849

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	1.240	1.000	1.210	1.000	1.000	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.040	1.091	0.986	1.000	1.000	1.000
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	1.000	0.923	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000	1.000	1.110	1.041	1.310	1.000	1.000	1.052
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000	1.000	0.935	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000	0.988	1.000	1.030	1.000	0.978	1.000	1.000	1.000	1.000
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.008	0.948	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	0.993	1.031	1.000	1.009	1.002	0.819	0.999	1.000	1.000	1.000	1.000	1.000
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000	1.019	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.176	1.166	0.926	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987	1.000	1.027	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	0.950	0.919	1.209	0.949	1.229	1.139	1.028	1.018	1.184	1.050	1.000	1.018	1.033	0.993	1.061	0.930	1.005	0.996	0.996	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960	1.000	1.013	1.114	1.000	1.017	0.951	0.980	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004	0.998	1.215	1.016	1.422	1.031	0.985	1.004	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000	1.000	1.000	1.000	0.790	1.000	1.000	1.000	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025	1.000	1.027	1.000	0.964	1.000	1.000	1.000	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031	1.128	1.054	1.008	1.007	0.984	1.000	1.000	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	0.617	0.966	1.049	1.000	0.980	1.478	0.965	1.000	0.994	1.004	0.788	0.897	1.000	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.722	1.118	0.966	1.165	1.131	0.914	1.000	1.000	1.171	1.041	1.101	1.594	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.634	1.105	1.092	0.992	0.995	1.011	1.030	0.998	1.000	1.064	1.000	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.001	1.386	1.428	1.273	1.096	0.860	1.036	1.000	1.000	1.019	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	0.652	0.774	1.000	1.456	1.099	1.108	1.000	1.000	1.000	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.087	1.038	1.086	1.054	1.027	0.940	1.070	1.023	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.869	1.252	1.024	1.185	0.966	1.049	1.039	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.555	1.006	1.138	1.012	1.103	1.140	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.144	1.037	0.917	0.984	1.021	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	2.028	1.405	1.210	0.916	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.314	0.959	1.090	1.102	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.602	1.577	1.084	1.102	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	2.464	1.168	1.084	1.102	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.674	1.168	1.084	1.102	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	158,405	218,273	220,532	220,532	229,333	250,213	246,661	246,661	246,661
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007	1,366,007	1,516,413	1,579,163	2,069,209	2,069,209	2,069,209
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701	2,135,701	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000	1,341,060	1,341,060	1,381,308	1,381,308	1,351,348	1,351,348	1,351,348	1,351,348
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481	2,199,740	2,199,740	2,219,267	2,223,018	1,820,018	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788	1,092,066	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236
2002	674,164	792,896	924,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590	700,590	719,666	719,666	719,666	719,666	719,666	719,666	719,666	719,666	719,666	719,666	719,666
2003	1,091,012	1,036,470	952,537	1,151,270	1,092,375	1,342,039	1,528,804	1,571,990	1,599,735	1,894,459	1,989,626	1,989,626	2,025,726	2,092,214	2,078,460	2,205,077	2,051,262	2,061,011	2,052,007	2,044,371	2,044,371	2,044,371	2,044,371	2,044,371	2,044,371	2,044,371
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,631	834,631	861,768	1,248,642	1,248,642	1,199,204	1,199,204	1,215,087	1,353,628	1,353,628	1,376,628	1,308,781	1,283,109	1,282,928	1,282,928	1,282,928	1,282,928	1,282,928	1,282,928	1,282,928
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848	940,095	1,141,835	1,160,547	1,650,304	1,701,055	1,675,074	1,682,156	1,685,814	1,685,576	1,685,576	1,685,576	1,685,576	1,685,576	1,685,576	1,685,576
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084	213,084	213,084	213,084	168,243	168,243	168,243	168,243	169,954	170,324	170,299	170,299	170,299	170,299	170,299	170,299	170,299
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277	2,424,277	2,488,778	2,488,778	2,398,612	2,398,612	2,398,612	2,398,612	2,429,096	2,453,793	2,459,129	2,458,782	2,458,782	2,458,782	2,458,782	2,458,782	2,458,782	2,458,782
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851	1,930,604	2,035,727	2,052,177	2,067,463	2,034,991	2,034,991	2,034,991	2,067,320	2,093,594	2,114,880	2,119,479	2,119,180	2,119,180	2,119,180	2,119,180	2,119,180	2,119,180	2,119,180
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547	1,247,747	1,247,747	1,240,247	1,244,606	980,624	879,624	879,624	899,683	913,975	925,591	935,002	937,035	936,903	936,903	936,903	936,903	936,903	936,903	936,903
2010	337,003	243,262	272,086	262,819	306,255	346,255	316,478	316,478	316,478	370,478	385,727	424,609	676,953	678,906	694,387	705,418	714,384	721,647	723,216	723,114	723,114	723,114	723,114	723,114	723,114	723,114
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817	1,983,357	2,004,595	2,064,707	2,060,317	2,060,317	2,191,528	2,191,528	2,261,428	2,267,952	2,319,669	2,356,520	2,386,469	2,410,733	2,415,976	2,415,635	2,415,635	2,415,635	2,415,635	2,415,635	2,415,635	2,415,635
2012	385,065	385,438	534,218	762,801	970,701	1,063,470	914,659	948,028	948,028	948,208	966,601	972,028	1,003,031	1,005,925	1,028,863	1,045,208	1,058,492	1,069,254	1,071,579	1,071,428	1,071,428	1,071,428	1,071,428	1,071,428	1,071,428	1,071,428
2013	287,002	187,000	144,674	144,674	210,713	231,563	256,528	256,528	256,528	256,528	262,398	263,871	272,287	273,073	279,300	283,737	287,343	290,264	290,896	290,855	290,855	290,855	290,855	290,855	290,855	290,855
2014	1,217,768	1,324,230	1,374,411	1,493,061	1,573,979	1,616,609	1,519,369	1,626,355	1,662,972	1,703,076	1,742,042	1,751,823	1,807,698	1,812,914	1,854,254	1,883,712	1,907,652	1,927,048	1,931,238	1,930,966	1,930,966	1,930,966	1,930,966	1,930,966	1,930,966	1,930,966
2015	956,615	1,788,319	2,238,470	2,292,173	2,716,546	2,625,210	2,752,754	2,859,888	2,922,144	2,992,614	3,061,084	3,078,271	3,176,454	3,185,619	3,258,262	3,310,024	3,352,091	3,386,172	3,393,536	3,393,057	3,393,057	3,393,057	3,393,057	3,393,057	3,393,057	3,393,057
2016	621,267	965,820	971,174	1,104,759	1,118,562	1,233,642	1,406,288	1,464,368	1,496,245	1,532,329	1,567,388	1,576,188	1,626,461	1,631,154	1,668,350	1,694,854	1,716,394	1,733,845	1,737,615	1,737,370	1,737,370	1,737,370	1,737,370	1,737,370	1,737,370	1,737,370
2017	1,293,564	1,479,562	1,534,500	1,407,449	1,384,975	1,414,084	1,509,705	1,572,056	1,606,277	1,645,014	1,682,652	1,692,099	1,746,070	1,751,107	1,791,038	1,819,491	1,842,615	1,861,350	1,865,398	1,865,134	1,865,134	1,865,134	1,865,134	1,865,134	1,865,134	1,865,134
2018	316,005	641,000	900,447	1,089,911	998,234	1,048,530	1,119,433	1,165,665	1,191,040	1,219,763	1,247,671	1,254,676	1,294,695	1,298,430	1,328,039	1,349,137	1,366,283	1,380,174	1,383,176	1,382,980	1,382,980	1,382,980	1,382,980	1,382,980	1,382,980	1,382,980
2019	378,200	496,923	476,353	519,267	572,067	600,891	641,524	668,019	682,561	699,021	715,015	719,029	741,963	744,104	761,072	773,163	782,989	790,950	792,670	792,558	792,558	792,558	792,558	792,558	792,558	792,558
2020	461,334	739,254	1,165,659	1,263,431	1,391,899	1,462,031	1,560,894	1,625,359	1,660,741	1,700,792	1,739,705	1,749,473	1,805,273	1,810,482	1,851,767	1,881,185	1,905,093	1,924,462	1,928,647	1,928,375	1,928,375	1,928,375	1,928,375	1,928,375	1,928,375	1,928,375
2021	590,411	1,454,650	1,698,825	1,841,317	2,028,546	2,130,755	2,274,838	2,368,789	2,420,355	2,478,724	2,535,436	2,549,672	2,630,995	2,638,585	2,698,754	2,741,628	2,776,471	2,804,700	2,810,799	2,810,403	2,810,403	2,810,403	2,810,403	2,810,403	2,810,403	2,810,403
2022	978,786	1,638,256	1,913,250	2,073,727	2,284,588	2,399,698	2,561,967	2,667,777	2,725,851	2,791,587	2,855,458	2,871,490	2,963,078	2,971,627	3,039,390	3,087,675	3,126,916	3,158,708	3,165,577	3,165,131	3,165,131	3,165,131	3,165,131	3,165,131	3,165,131	3,165,131

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994	1.240	1.000	1.210	1.000	1.000	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.040	1.091	0.986	1.000
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	1.000	0.923	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000	1.000	1.110	1.041	1.310	1.000
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000	1.000	0.935	1.000	1.000	1.000	1.000
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000	0.988	1.000	1.030	1.000	0.978	1.000	1.000
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.008	0.948	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	0.993	1.031	1.000	1.009	1.002	0.819	0.999	1.000		
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000	1.019	0.990	1.000	1.000	1.000	1.000	1.000			
2002	1.176	1.166	0.926	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987	1.000	1.027	1.000	1.000	1.000	1.000	1.000				
2003	0.950	0.919	1.209	0.949	1.229	1.139	1.028	1.018	1.184	1.050	1.000	1.018	1.033	0.993	1.061	0.930	1.005	0.996	0.996					
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960	1.000	1.013	1.114	1.000	1.017	0.951	0.980						
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004	0.998	1.215	1.016	1.422	1.031	0.985	1.004							
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000	1.000	1.000	1.000	0.790	1.000	1.000	1.000								
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025	1.000	1.027	1.000	0.964	1.000	1.000	1.000									
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031	1.128	1.054	1.008	1.007	0.984	1.000	1.000										
2009	0.617	0.966	1.049	1.000	0.980	1.478	0.965	1.000	0.994	1.004	0.788	0.897	1.000											
2010	0.722	1.118	0.966	1.165	1.131	0.914	1.000	1.000	1.171	1.041	1.101	1.594												
2011	1.634	1.105	1.092	0.992	0.995	1.011	1.030	0.998	1.000	1.064	1.000													
2012	1.001	1.386	1.428	1.273	1.096	0.860	1.036	1.000	1.000	1.019														
2013	0.652	0.774	1.000	1.456	1.099	1.108	1.000	1.000	1.000															
2014	1.087	1.038	1.086	1.054	1.027	0.940	1.070	1.023																
2015	1.869	1.252	1.024	1.185	0.966	1.049	1.039																	
2016	1.555	1.006	1.138	1.012	1.103	1.140																		
2017	1.144	1.037	0.917	0.984	1.021																			
2018	2.028	1.405	1.210	0.916																				
2019	1.314	0.959	1.090																					
2020	1.602	1.577																						
2021	2.464																							
VOL WTD 3	1.882	1.354	1.036	0.972	1.010	1.037	1.047	1.013	1.000	1.049	0.941	1.034	1.000	1.000	1.012	0.999	0.990	0.992	0.998	0.900	0.999	0.991	1.000	1.000
VOL WTD 5	1.583	1.168	1.048	1.055	1.017	1.012	1.041	1.006	1.010	1.028	0.975	1.005	0.996	1.090	1.023	0.974	0.993	0.998	0.999	0.934	1.000	1.005	1.087	1.000
VOL WTD ALL	1.203	1.109	1.092	1.081	1.047	1.068	1.035	1.022	1.024	1.017	0.988	1.036	1.003	1.061	1.038	0.994	0.995	1.002	1.000	0.947	1.019	1.007	1.087	1.000
ARITH 3	1.793	1.313	1.073	0.971	1.030	1.043	1.036	1.008	1.000	1.041	0.963	1.159	1.000	1.000	1.010	1.001	0.987	0.992	0.999	0.940	1.000	0.993	1.000	1.000
ARITH 5	1.710	1.197	1.076	1.030	1.043	1.019	1.035	1.004	1.033	1.027	0.979	1.088	0.961	1.107	1.018	0.986	0.992	0.997	1.000	0.970	1.019	1.016	1.049	1.000
ARITH ALL	1.244	1.102	1.152	1.202	1.030	1.121	1.052	1.034	1.030	1.022	1.009	1.077	0.994	1.063	1.047	0.997	0.990	1.032	1.001	0.976	1.019	1.016	1.049	1.000
5 YR HI LO	1.648	1.149	1.084	1.017	1.049	1.032	1.035	1.000	1.000	1.023	1.002	0.983	1.000	1.038	1.010	0.995	1.001	0.999	1.000	1.000	1.000	1.000	1.000	NA
7 YR HI LO	1.674	1.147	1.068	1.102	1.047	1.004	1.021	1.005	1.011	1.020	1.001	1.033	1.006	1.023	1.015	0.998	1.001	0.997	1.000	0.987	1.000	1.000	1.000	1.000
ALL YR HI LO	1.224	1.103	1.110	1.123	1.050	1.068	1.017	1.025	1.018	1.017	1.006	1.032	0.995	1.034	1.016	1.000	1.001	0.998	1.000	0.987	1.000	1.000	1.000	1.000
SELECTED	1.674	1.168	1.084	1.102	1.050	1.068	1.041	1.022	1.024	1.023	1.006	1.032	1.003	1.023	1.016	1.013	1.010	1.002	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Incurred Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	158,405	218,273	220,532	220,532	229,333	250,213	246,661
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953	241,953	241,953	241,953
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007	1,366,007	1,516,413	1,579,163	2,069,209
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701	2,135,701	1,995,927	1,995,927	1,995,927	1,995,927
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000	1,341,060	1,341,060	1,381,308	1,381,308	1,351,348	1,351,348
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481	2,199,740	2,199,740	2,219,267	2,223,018	1,820,018	1,817,407	1,817,407	
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788	1,092,066	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236		
2002	674,164	792,896	924,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590	700,590	719,666	719,666	719,666	719,666	719,666	719,666			
2003	1,091,012	1,036,470	952,537	1,151,270	1,092,375	1,342,039	1,528,804	1,571,990	1,599,735	1,894,459	1,989,626	1,989,626	2,025,726	2,092,214	2,078,460	2,205,077	2,051,262	2,061,011	2,052,007	2,044,371				
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,631	834,631	861,768	1,248,642	1,248,642	1,199,204	1,199,204	1,215,087	1,353,628	1,353,628	1,376,628	1,308,781	1,283,109					
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848	940,095	1,141,835	1,160,547	1,650,304	1,701,055	1,675,074	1,682,156						
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084	213,084	213,084	213,084	168,243	168,243	168,243	168,243							
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277	2,424,277	2,488,778	2,488,778	2,398,612	2,398,612	2,398,612	2,398,612								
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851	1,930,604	2,035,727	2,052,177	2,067,463	2,034,991	2,034,991	2,034,991									
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547	1,247,747	1,247,747	1,240,247	1,244,606	980,624	879,624	879,624										
2010	337,003	243,262	272,086	262,819	306,255	346,255	316,478	316,478	316,478	370,478	385,727	424,609	676,953											
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817	1,983,357	2,004,595	2,064,707	2,060,317	2,060,317	2,191,528	2,191,528												
2012	385,065	385,438	534,218	762,801	970,701	1,063,470	914,659	948,028	948,028	948,208	966,601													
2013	287,002	187,000	144,674	144,674	210,713	231,563	256,528	256,528	256,528	256,528														
2014	1,217,768	1,324,230	1,374,411	1,493,061	1,573,979	1,616,609	1,519,369	1,626,355	1,662,972															
2015	956,615	1,788,319	2,238,470	2,292,173	2,716,546	2,625,210	2,752,754	2,859,888																
2016	621,267	965,820	971,174	1,104,759	1,118,562	1,233,642	1,406,288																	
2017	1,293,564	1,479,562	1,534,500	1,407,449	1,384,975	1,414,084																		
2018	316,005	641,000	900,447	1,089,911	998,234																			
2019	378,200	496,923	476,353	519,267																				
2020	461,334	739,254	1,165,659																					
2021	590,411	1,454,650																						
2022	978,786																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Determination of Pure Premium

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	SELECTED	POLICIES	PURE
RY	ULTIMATE	ULTIMATE	ULTIMATE	IN FORCE	PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	2,191,454	2,119,180	2,155,317	2,664	809
2009	922,274	936,903	929,588	2,662	349
2010	676,953	723,114	700,033	2,622	267
2011	2,644,675	2,415,635	2,530,155	2,623	965
2012	1,157,711	1,071,428	1,114,570	2,617	426
2013	302,019	290,855	296,437	2,603	114
2014	2,074,072	1,930,966	2,002,519	2,573	778
2015	3,815,648	3,393,057	3,604,353	2,530	1,425
2016	1,851,216	1,737,370	1,794,293	2,509	715
2017	2,176,431	1,865,134	2,020,783	2,489	812
2018	1,286,494	1,382,980	1,334,737	2,487	537
2019	707,800	792,558	750,179	2,413	311
2020	1,165,659	1,928,375	1,547,017	2,408	642
2021	1,505,338	2,810,403	2,157,871	2,405	897
2022	3,103,286	3,165,131	3,165,131	2,371	1,335
TOTAL	25,581,031	26,563,087	26,102,982	37,976	687

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
RY	POLICIES IN FORCE	PROJECTED PURE PREM	TRENDED PURE PREM	DETRENDED PURE PREM	EXPECTED LOSSES	PERCENT UNPAID	EXPECTED UNPAID	PAID LOSSES	INDICATED ULTIMATE	INCURRED LOSSES	IBNR RESERVE	CASE RESERVE	ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	809	1,594	375	999,070	11.9%	118,512	1,893,642	2,012,154	2,034,991	(22,838)	141,349	755
2009	2,662	349	656	394	1,047,880	15.9%	167,124	783,624	950,748	879,624	71,124	96,000	357
2010	2,622	267	478	413	1,083,373	21.4%	232,254	378,913	611,166	676,953	(65,787)	298,040	233
2011	2,623	965	1,644	434	1,137,590	23.3%	264,962	2,002,952	2,267,914	2,191,528	76,386	188,576	865
2012	2,617	426	691	455	1,191,332	27.8%	331,291	856,110	1,187,400	966,601	220,800	110,491	454
2013	2,603	114	176	478	1,243,785	33.4%	415,039	210,187	625,227	256,528	368,699	46,341	240
2014	2,573	778	1,147	502	1,290,484	36.6%	471,742	1,332,249	1,803,991	1,662,972	141,019	330,723	701
2015	2,530	1,425	2,000	526	1,331,912	39.4%	524,463	2,333,718	2,858,182	2,859,888	(1,706)	526,170	1,130
2016	2,509	715	956	553	1,386,428	46.0%	637,641	1,081,888	1,719,529	1,406,288	313,241	324,400	685
2017	2,489	812	1,034	580	1,443,655	54.1%	781,258	1,133,161	1,914,419	1,414,084	500,336	280,923	769
2018	2,487	537	651	609	1,514,106	61.1%	924,815	569,047	1,493,863	998,234	495,629	429,187	601
2019	2,413	311	360	639	1,541,983	68.0%	1,048,192	265,564	1,313,756	519,267	794,489	253,703	544
2020	2,408	642	708	671	1,615,179	79.5%	1,284,394	340,637	1,625,030	1,165,659	459,371	825,022	675
2021	2,405	897	942	704	1,693,250	91.1%	1,541,821	297,198	1,839,019	1,454,650	384,368	1,157,452	765
2022	2,371	1,335	1,335	739	1,752,183	91.1%	1,595,483	267,545	1,863,029	978,786	884,242	711,241	786
TOTAL	37,976				20,272,213		10,338,990	13,746,435	24,085,426	19,466,053	4,619,373	5,719,618	634

Pure Premium Selection		Trend =	1.050
3-Year Average x Latest	670		
5-Year Average x Latest	739		
All Year Average x Latest	931		
Selected Pure Premium	739		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Release
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	809	1,594	375	999,070	6.1%	61,079	2,034,991	2,096,071	1,893,642	202,429	141,349	787
2009	2,662	349	656	394	1,047,880	6.4%	66,894	879,624	946,518	783,624	162,894	96,000	356
2010	2,622	267	478	413	1,083,373	9.3%	100,508	676,953	777,461	378,913	398,549	298,040	297
2011	2,623	965	1,644	434	1,137,590	9.8%	111,301	2,191,528	2,302,828	2,002,952	299,876	188,576	878
2012	2,617	426	691	455	1,191,332	11.8%	140,599	966,601	1,107,200	856,110	251,090	110,491	423
2013	2,603	114	176	478	1,243,785	13.9%	172,621	256,528	429,150	210,187	218,962	46,341	165
2014	2,573	778	1,147	502	1,290,484	15.7%	202,781	1,662,972	1,865,753	1,332,249	533,504	330,723	725
2015	2,530	1,425	2,000	526	1,331,912	19.1%	253,816	2,859,888	3,113,704	2,333,718	779,986	526,170	1,231
2016	2,509	715	956	553	1,386,428	24.2%	335,284	1,406,288	1,741,572	1,081,888	659,684	324,400	694
2017	2,489	812	1,034	580	1,443,655	27.8%	401,626	1,414,084	1,815,710	1,133,161	682,549	280,923	729
2018	2,487	537	651	609	1,514,106	34.5%	522,096	998,234	1,520,329	569,047	951,282	429,187	611
2019	2,413	311	360	639	1,541,983	39.6%	609,889	519,267	1,129,157	265,564	863,592	253,703	468
2020	2,408	642	708	671	1,615,179	48.2%	779,171	1,165,659	1,944,830	340,637	1,604,193	825,022	808
2021	2,405	897	942	704	1,693,250	69.1%	1,169,629	1,454,650	2,624,279	297,198	2,327,081	1,157,452	1,091
2022	2,371	1,335	1,335	739	1,752,183	69.1%	1,210,337	978,786	2,189,124	267,545	1,921,578	711,241	923
TOTAL	37,976				20,272,213		6,137,631	19,466,053	25,603,684	13,746,435	11,857,249	5,719,618	674

Pure Premium Selection		Trend =	1.050
3-Year Average x Latest	670		
5-Year Average x Latest	739		
All Year Average x Latest	931		
Selected Pure Premium	739		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,620,899	4,476,358	4,620,899	144,541	-	144,541
1998	5,964,475	5,238,246	5,964,475	726,229	-	726,229
1999	9,671,222	9,412,640	9,666,343	253,702	4,879	258,581
2000	5,616,449	5,442,164	5,578,254	136,090	38,195	174,285
2001	2,271,622	2,188,879	2,223,792	34,913	47,830	82,743
2002	4,432,164	4,243,920	4,418,120	174,200	14,045	188,245
2003	3,555,208	3,345,219	3,555,208	209,989	-	209,989
2004	2,338,322	2,166,165	2,338,322	172,158	-	172,158
2005	2,824,031	2,614,037	2,765,098	151,061	58,933	209,994
2006	1,780,461	1,364,261	1,780,461	416,200	-	416,200
2007	4,176,104	3,734,150	4,020,125	285,975	155,979	441,954
2008	2,981,045	2,612,744	2,972,885	360,142	8,160	368,302
2009	2,263,127	1,945,535	2,027,535	82,000	235,592	317,592
2010	1,945,107	1,625,448	1,945,107	319,659	-	319,659
2011	1,861,269	1,532,420	1,584,634	52,214	276,634	328,849
2012	2,813,870	2,268,503	2,386,388	117,885	427,481	545,366
2013	3,933,182	3,047,996	3,452,011	404,015	481,171	885,186
2014	3,104,695	2,321,900	3,008,322	686,422	96,373	782,794
2015	2,704,196	1,938,080	2,477,479	539,399	226,717	766,116
2016	2,490,286	1,711,971	2,077,388	365,417	412,898	778,315
2017	2,799,997	1,808,008	2,396,824	588,816	403,173	991,989
2018	3,245,380	1,889,816	2,484,981	595,165	760,400	1,355,564
2019	2,867,197	1,470,814	2,707,603	1,236,789	159,594	1,396,383
2020	966,130	400,210	783,580	383,370	182,550	565,920
2021	925,849	233,590	925,849	692,259	-	692,259
2022	3,391,928	219,104	852,504	633,400	2,539,424	3,172,824
TOTAL	91,380,185	74,737,536	84,850,158	10,112,622	6,530,027	16,642,649

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046	1.003	1.000	1.009	1.000	1.047
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023	1.022	1.009	1.008	1.007	1.001	1.000	1.000
1997	5.819	1.948	1.614	1.305	1.186	1.276	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.016	1.014	1.016	1.051	1.021	1.014	1.007	1.007	1.007	1.000	1.007	1.000
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.047	1.054	1.027	1.025	1.014	1.015	1.002	1.010	1.000	1.000
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021	1.022	1.010	1.010	1.005	1.008	1.003	1.004	1.001	1.000	1.000
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018	1.027	1.028	1.013	1.007	1.012	1.001	1.000	1.004	1.001	1.000	1.000
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024	1.018	1.023	1.030	1.022	1.006	1.000	1.000	1.006	1.004	1.001	1.000	1.000
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012	1.019	1.032	1.000	1.004	1.002	1.002	1.000	1.006	1.006	1.004	1.001	1.000	1.000
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027	1.006	1.016	1.044	1.039	1.017	1.023	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016	1.028	1.024	1.007	1.008	1.013	1.004	1.000	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027	1.016	1.110	1.038	1.035	1.034	1.013	1.044	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001	1.027	1.000	1.003	1.037	1.040	1.017	1.000	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071	1.089	1.037	1.041	1.041	1.022	1.009	1.009	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037	1.047	1.057	1.049	1.012	1.030	1.010	1.016	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2009	4.550	1.176	1.057	1.032	1.024	1.028	1.025	1.018	1.008	1.059	1.002	1.009	1.000	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2010	9.898	1.200	1.190	1.142	1.092	1.042	1.038	1.055	1.049	1.051	1.032	1.009	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2011	2.092	1.360	1.105	1.049	1.034	1.106	1.077	1.034	1.022	1.002	1.005	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2012	2.259	1.678	1.189	1.204	1.119	1.072	1.056	1.017	1.030	1.022	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2013	2.154	1.421	1.329	1.240	1.184	1.078	1.052	1.045	1.023	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2014	7.132	1.486	1.179	1.112	1.200	1.049	1.007	1.033	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2015	10.893	2.283	1.132	1.105	1.104	1.028	1.011	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2016	3.832	1.726	1.334	1.117	1.061	1.101	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2017	3.572	1.541	1.247	1.138	1.075	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2018	4.370	1.506	1.246	1.088	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2019	7.572	1.468	1.191	1.135	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2020	3.890	1.683	1.238	1.135	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2021	1.802	1.554	1.238	1.135	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000
2022	4.125	1.554	1.238	1.135	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	724,556	724,556	731,314	731,314
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	801,569	830,629	830,629	830,629	830,629	830,629	830,629
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617	3,785,792	3,818,767	3,847,779	3,874,358	3,877,028	3,877,028
1997	72,267	420,516	818,971	1,322,050	1,725,175	2,046,286	2,611,320	2,806,731	2,927,033	3,087,166	3,270,647	3,346,153	3,480,934	3,657,844	3,823,868	3,884,517	3,938,233	4,000,871	4,203,519	4,290,460	4,351,204	4,383,540	4,415,705	4,446,446	4,446,446	4,476,358
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913	4,773,615	4,900,838	5,023,106	5,095,402	5,174,038	5,186,048	5,238,246	5,238,246
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161	9,049,576	9,137,364	9,232,961	9,275,507	9,349,792	9,373,987	9,412,640	9,419,127	9,419,127
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988	5,122,239	5,263,743	5,331,739	5,370,653	5,436,106	5,442,164	5,442,164	5,466,281	5,470,048	5,470,048
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119	2,018,978	2,065,730	2,128,279	2,174,973	2,188,879	2,188,879	2,188,879	2,201,131	2,210,885	2,212,409	2,212,409
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981	4,079,843	4,208,501	4,208,501	4,225,838	4,233,790	4,243,920	4,243,920	4,270,725	4,294,629	4,313,660	4,316,633	4,316,633
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359	2,887,346	2,934,085	3,063,698	3,182,240	3,235,238	3,308,507	3,345,219	3,380,773	3,402,126	3,421,168	3,436,330	3,438,698	3,438,698
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768	2,050,897	2,099,609	2,113,648	2,130,676	2,158,476	2,166,165	2,166,165	2,190,397	2,213,677	2,227,659	2,240,127	2,250,054	2,251,605	2,251,605
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656	2,004,142	2,224,850	2,309,907	2,389,815	2,471,917	2,503,065	2,614,037	2,646,050	2,675,650	2,704,088	2,721,167	2,736,398	2,748,525	2,750,419	2,750,419
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387	1,239,850	1,239,850	1,243,210	1,289,388	1,340,833	1,364,261	1,364,261	1,391,625	1,408,667	1,424,426	1,439,565	1,448,657	1,456,766	1,463,221	1,464,230	1,464,230
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041	3,195,238	3,312,186	3,449,564	3,591,451	3,670,807	3,702,436	3,734,150	3,789,561	3,865,570	3,912,910	3,956,682	3,998,735	4,023,992	4,046,514	4,064,447	4,067,248	4,067,248
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246	2,203,792	2,328,660	2,441,800	2,471,712	2,544,896	2,570,798	2,612,744	2,665,564	2,705,118	2,759,376	2,793,168	2,824,415	2,854,433	2,872,462	2,888,540	2,901,341	2,903,340	2,903,340
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791	1,771,068	1,803,131	1,818,009	1,925,581	1,929,070	1,945,535	1,945,535	1,983,522	2,023,622	2,053,650	2,094,841	2,120,496	2,144,217	2,167,006	2,180,693	2,192,899	2,202,617	2,204,135	2,204,135
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412	1,293,850	1,342,840	1,416,703	1,486,360	1,561,464	1,611,644	1,625,448	1,658,730	1,691,117	1,725,306	1,750,907	1,786,026	1,807,899	1,828,123	1,847,553	1,859,222	1,869,628	1,877,914	1,879,208	1,879,208
2011	354,238	741,233	1,008,015	1,114,183	1,168,623	1,208,286	1,336,441	1,439,764	1,488,452	1,521,528	1,524,576	1,532,420	1,567,966	1,600,071	1,631,313	1,664,292	1,688,988	1,722,865	1,743,964	1,763,474	1,782,216	1,793,473	1,803,511	1,811,504	1,812,752	1,812,752
2012	308,280	696,402	1,168,776	1,389,447	1,672,985	1,872,897	2,007,539	2,119,951	2,155,353	2,220,037	2,268,503	2,316,716	2,370,454	2,418,990	2,466,222	2,516,080	2,553,416	2,604,631	2,636,529	2,666,023	2,694,358	2,711,376	2,726,552	2,738,635	2,740,522	2,740,522
2013	420,803	906,448	1,288,052	1,711,865	2,123,471	2,514,517	2,709,963	2,851,670	2,979,573	3,047,996	3,170,877	3,238,268	3,313,382	3,381,225	3,447,246	3,516,936	3,569,124	3,640,711	3,685,297	3,726,524	3,766,130	3,789,918	3,811,130	3,828,019	3,830,657	3,830,657
2014	127,794	911,475	1,354,211	1,596,521	1,774,763	2,129,113	2,232,987	2,247,675	2,321,900	2,405,965	2,502,962	2,556,158	2,615,450	2,669,003	2,721,116	2,776,127	2,817,322	2,873,830	2,909,025	2,941,567	2,972,831	2,991,608	3,008,352	3,021,684	3,023,766	3,023,766
2015	54,289	591,352	1,349,945	1,527,986	1,687,938	1,864,127	1,916,105	1,938,080	2,022,380	2,095,601	2,180,086	2,226,419	2,278,063	2,324,707	2,370,098	2,418,013	2,453,894	2,503,113	2,533,767	2,562,112	2,589,342	2,605,697	2,620,281	2,631,893	2,633,707	2,633,707
2016	148,859	570,416	984,252	1,312,538	1,465,936	1,555,593	1,711,971	1,784,772	1,862,404	1,929,832	2,007,635	2,050,303	2,097,861	2,140,816	2,182,617	2,226,741	2,259,784	2,305,109	2,333,339	2,359,441	2,384,518	2,399,579	2,413,009	2,423,703	2,425,373	2,425,373
2017	215,178	768,576	1,184,057	1,476,912	1,681,453	1,808,008	1,924,885	2,006,740	2,094,027	2,169,841	2,257,319	2,305,294	2,358,767	2,407,064	2,454,064	2,503,676	2,540,828	2,591,790	2,623,531	2,652,879	2,681,075	2,698,009	2,713,110	2,725,133	2,727,011	2,727,011
2018	211,847	925,703	1,393,959	1,736,597	1,889,816	2,095,600	2,231,068	2,325,944	2,427,114	2,514,988	2,616,381	2,671,987	2,733,966	2,789,945	2,844,421	2,901,924	2,944,986	3,004,055	3,040,844	3,074,861	3,107,541	3,127,169	3,144,672	3,158,608	3,160,785	3,160,785
2019	111,087	841,196	1,235,233	1,470,814	1,669,596	1,851,400	1,971,082	2,054,902	2,144,283	2,221,917	2,311,495	2,360,621	2,415,377	2,464,834	2,512,961	2,563,764	2,601,807	2,653,993	2,686,495	2,716,548	2,745,420	2,762,761	2,778,224	2,790,536	2,792,459	2,792,459
2020	61,138	237,826	400,210	495,605	562,587	623,847	664,175	692,419	722,537	748,697	778,881	795,434	813,885	830,550	846,767	863,885	876,704	894,289	905,241	915,368	925,096	930,939	936,150	940,298	940,946	940,946
2021	129,624	233,590	363,109	449,661	510,433	566,015	602,604	628,230	655,556	679,290	706,676	721,695	738,436	753,555	768,269	783,801	795,431	811,386	821,322	830,510	839,337	844,638	849,366	853,130	853,718	853,718
2022	219,104	903,891	1,405,073	1,739,991	1,975,152	2,190,228	2,331,814	2,430,974	2,536,713	2,628,555	2,734,526	2,792,643	2,857,421	2,915,928	2,972,863	3,032,963	3,077,969	3,139,706	3,178,156	3,213,709	3,247,865	3,268,379	3,286,673	3,301,238	3,303,513	3,303,513

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046	1.003	1.000	1.009
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	1.000	1.000	1.000	1.000
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023	1.022	1.009	1.008	1.007	1.001
1997	5.819	1.948	1.614	1.305	1.186	1.276	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.016	1.014	1.016	1.051	1.021	1.014	1.007	1.007	1.007	1.000
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.047	1.054	1.027	1.025	1.014	1.015	1.002	1.010
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021	1.022	1.010	1.010	1.005	1.008	1.003	1.004	
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018	1.027	1.028	1.013	1.007	1.012	1.001	1.000		
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024	1.018	1.023	1.030	1.022	1.006	1.000	1.000			
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012	1.019	1.032	1.000	1.004	1.002	1.002	1.000				
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027	1.006	1.016	1.044	1.039	1.017	1.023	1.011					
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016	1.028	1.024	1.007	1.008	1.013	1.004	1.000						
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027	1.016	1.110	1.038	1.035	1.034	1.013	1.044							
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001	1.027	1.000	1.003	1.037	1.040	1.017	1.000								
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071	1.089	1.037	1.041	1.041	1.022	1.009	1.009									
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037	1.047	1.057	1.049	1.012	1.030	1.010	1.016										
2009	4.550	1.176	1.057	1.032	1.024	1.028	1.025	1.018	1.008	1.059	1.002	1.009	1.000											
2010	9.898	1.200	1.190	1.142	1.092	1.042	1.038	1.055	1.049	1.051	1.032	1.009												
2011	2.092	1.360	1.105	1.049	1.034	1.106	1.077	1.034	1.022	1.002	1.005													
2012	2.259	1.678	1.189	1.204	1.119	1.072	1.056	1.017	1.030	1.022														
2013	2.154	1.421	1.329	1.240	1.184	1.078	1.052	1.045	1.023															
2014	7.132	1.486	1.179	1.112	1.200	1.049	1.007	1.033																
2015	10.893	2.283	1.132	1.105	1.104	1.028	1.011																	
2016	3.832	1.726	1.334	1.117	1.061	1.101																		
2017	3.572	1.541	1.247	1.138	1.075																			
2018	4.370	1.506	1.246	1.088																				
2019	7.572	1.468	1.191																					
2020	3.890	1.683																						
2021	1.802																							
VOL WTD 3	4.349	1.511	1.228	1.113	1.081	1.056	1.026	1.033	1.025	1.024	1.012	1.017	1.013	1.017	1.018	1.010	1.022	1.008	1.006	1.006	1.005	1.005	1.004	1.004
VOL WTD 5	4.125	1.554	1.224	1.111	1.130	1.065	1.039	1.036	1.025	1.037	1.021	1.023	1.020	1.018	1.023	1.013	1.018	1.012	1.008	1.009	1.007	1.006	1.004	1.004
VOL WTD ALL	3.279	1.425	1.189	1.162	1.096	1.096	1.049	1.049	1.039	1.046	1.025	1.037	1.027	1.020	1.021	1.018	1.022	1.020	1.013	1.011	1.008	1.006	1.004	1.004
ARITH 3	4.421	1.552	1.228	1.115	1.080	1.059	1.023	1.032	1.025	1.025	1.013	1.016	1.011	1.022	1.020	1.009	1.022	1.008	1.007	1.004	1.003	1.006	1.004	1.004
ARITH 5	4.241	1.585	1.230	1.112	1.125	1.065	1.041	1.037	1.027	1.036	1.019	1.018	1.022	1.021	1.023	1.013	1.020	1.012	1.008	1.008	1.011	1.005	1.003	1.004
ARITH ALL	4.077	1.482	1.258	1.194	1.086	1.100	1.073	1.071	1.041	1.050	1.024	1.036	1.023	1.019	1.025	1.020	1.021	1.022	1.014	1.013	1.011	1.005	1.003	1.004
5 YR HI LO	3.944	1.576	1.228	1.111	1.121	1.066	1.040	1.037	1.025	1.040	1.017	1.016	1.023	1.020	1.020	1.009	1.017	1.012	1.008	1.006	1.006	1.006	1.004	NA
7 YR HI LO	4.647	1.588	1.238	1.135	1.109	1.068	1.037	1.035	1.036	1.037	1.014	1.023	1.020	1.019	1.022	1.015	1.020	1.014	1.011	1.011	1.006	1.006	1.006	1.001
ALL YR HI LO	4.098	1.478	1.190	1.146	1.090	1.082	1.043	1.043	1.035	1.043	1.021	1.031	1.025	1.020	1.020	1.015	1.021	1.018	1.013	1.011	1.006	1.006	1.006	1.001
SELECTED	4.125	1.554	1.238	1.135	1.109	1.065	1.043	1.043	1.036	1.040	1.021	1.023	1.020	1.020	1.020	1.015	1.020	1.012	1.011	1.011	1.006	1.006	1.004	1.001

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	724,556	724,556
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	801,569	830,629	830,629	830,629	830,629
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617	3,785,792	3,818,767	3,847,779	3,874,358
1997	72,267	420,516	818,971	1,322,050	1,725,175	2,046,286	2,611,320	2,806,731	2,927,033	3,087,166	3,270,647	3,346,153	3,480,934	3,657,844	3,823,868	3,884,517	3,938,233	4,000,871	4,203,519	4,290,460	4,351,204	4,383,540	4,415,705	4,446,446
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913	4,773,615	4,900,838	5,023,106	5,095,402	5,174,038	5,186,048
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161	9,049,576	9,137,364	9,232,961	9,275,507	9,349,792	9,373,987	9,412,640
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988	5,122,239	5,263,743	5,331,739	5,370,653	5,436,106	5,442,164	5,442,164	
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119	2,018,978	2,065,730	2,128,279	2,174,973	2,188,879	2,188,879	2,188,879		
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981	4,079,843	4,208,501	4,208,501	4,225,838	4,233,790	4,243,920	4,243,920			
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359	2,887,346	2,934,085	3,063,698	3,182,240	3,235,238	3,308,507	3,345,219				
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768	2,050,897	2,099,609	2,113,648	2,130,676	2,158,476	2,166,165	2,166,165					
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656	2,004,142	2,224,850	2,309,907	2,389,815	2,471,917	2,503,065	2,614,037						
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387	1,239,850	1,239,850	1,243,210	1,289,388	1,340,833	1,364,261	1,364,261							
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041	3,195,238	3,312,186	3,449,564	3,591,451	3,670,807	3,702,436	3,734,150								
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246	2,203,792	2,328,660	2,441,800	2,471,712	2,544,896	2,570,798	2,612,744									
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791	1,771,068	1,803,131	1,818,009	1,925,581	1,929,070	1,945,535	1,945,535										
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412	1,293,850	1,342,840	1,416,703	1,486,360	1,561,464	1,611,644	1,625,448											
2011	354,238	741,233	1,008,015	1,114,183	1,168,623	1,208,286	1,336,441	1,439,764	1,488,452	1,521,528	1,524,576	1,532,420												
2012	308,280	696,402	1,168,776	1,389,447	1,672,985	1,872,897	2,007,539	2,119,951	2,155,353	2,220,037	2,268,503													
2013	420,803	906,448	1,288,052	1,711,865	2,123,471	2,514,517	2,709,963	2,851,670	2,979,573	3,047,996														
2014	127,794	911,475	1,354,211	1,596,521	1,774,763	2,129,113	2,232,987	2,247,675	2,321,900															
2015	54,289	591,352	1,349,945	1,527,986	1,687,938	1,864,127	1,916,105	1,938,080																
2016	148,859	570,416	984,252	1,312,538	1,465,936	1,555,593	1,711,971																	
2017	215,178	768,576	1,184,057	1,476,912	1,681,453	1,808,008																		
2018	211,847	925,703	1,393,959	1,736,597	1,889,816																			
2019	111,087	841,196	1,235,233	1,470,814																				
2020	61,138	237,826	400,210																					
2021	129,624	233,590																						
2022	219,104																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,620,899	4,476,358	4,620,899	144,541	-	144,541
1998	5,964,475	5,238,246	5,964,475	726,229	-	726,229
1999	9,666,343	9,412,640	9,666,343	253,702	-	253,702
2000	5,578,254	5,442,164	5,578,254	136,090	-	136,090
2001	2,223,792	2,188,879	2,223,792	34,913	-	34,913
2002	4,424,115	4,243,920	4,418,120	174,200	5,996	180,196
2003	3,560,033	3,345,219	3,555,208	209,989	4,825	214,814
2004	2,350,003	2,166,165	2,338,322	172,158	11,681	183,838
2005	2,810,686	2,614,037	2,765,098	151,061	45,588	196,649
2006	1,831,452	1,364,261	1,780,461	416,200	50,991	467,191
2007	4,139,122	3,734,150	4,020,125	285,975	118,997	404,972
2008	3,109,495	2,612,744	2,972,885	360,142	136,609	496,751
2009	2,156,236	1,945,535	2,027,535	82,000	128,701	210,701
2010	2,099,122	1,625,448	1,945,107	319,659	154,015	473,674
2011	1,743,809	1,532,420	1,584,634	52,214	159,175	211,389
2012	2,660,505	2,268,503	2,386,388	117,885	274,117	392,002
2013	3,879,693	3,047,996	3,452,011	404,015	427,682	831,697
2014	3,440,412	2,321,900	3,008,322	686,422	432,090	1,118,512
2015	2,855,924	1,938,080	2,477,479	539,399	378,445	917,844
2016	2,431,673	1,711,971	2,077,388	365,417	354,286	719,702
2017	2,852,096	1,808,008	2,396,824	588,816	455,272	1,044,088
2018	3,014,126	1,889,816	2,484,981	595,165	529,145	1,124,310
2019	3,502,678	1,470,814	2,707,603	1,236,789	795,075	2,031,864
2020	1,117,811	400,210	783,580	383,370	334,231	717,601
2021	1,533,775	233,590	925,849	692,259	607,926	1,300,185
2022	2,273,050	219,104	852,504	633,400	1,420,546	2,053,946
TOTAL	91,675,550	74,737,536	84,850,158	10,112,622	6,825,392	16,938,013

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994	1.000	1.000	1.000	1.288	1.000
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.001	1.010	0.996	1.014	1.035	1.000	1.000	0.999	1.003	0.995	1.000	1.000
1997	1.376	1.029	1.122	1.191	0.932	1.009	1.006	0.951	1.008	0.949	1.007	1.030	1.036	1.012	1.022	1.005	1.040	1.023	1.004	0.982	1.007	1.002	1.017	1.000	0.985	1.000
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066	1.050	1.011	1.007	0.999	1.001	1.115	0.998	1.000	1.000
1999	1.380	1.175	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.039	1.005	1.043	0.997	1.000	1.009	1.002	0.974	0.971	0.999	1.003	1.010	1.000	0.999	1.000	1.000	1.000
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039	1.011	1.018	1.002	0.995	0.990	0.996	1.000	1.000	1.000	1.000	1.000
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000	1.031	1.000	1.011	0.996	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.086	1.231	1.061	0.999	1.008	1.176	0.980	1.001	1.007	1.022	1.019	0.998	0.985	1.015	1.013	0.987	1.000	1.000	1.002	1.005	1.001	1.000	1.000	1.000	1.000	1.000
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003	1.011	1.035	1.060	1.024	0.994	1.034	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020	1.029	1.000	0.997	0.997	0.984	1.034	1.000	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984	1.044	1.127	0.982	1.023	1.010	0.999	1.004	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962	0.985	1.000	1.105	1.020	1.126	0.988	1.000	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028	1.090	1.012	1.005	1.033	1.014	1.000	1.022	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994	1.105	1.066	1.000	0.983	0.996	1.012	1.011	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2009	0.825	0.842	0.957	1.023	0.974	1.022	0.998	1.008	1.073	1.018	1.000	0.965	1.020	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2010	0.696	0.928	0.970	1.076	1.062	1.073	1.007	0.983	0.992	0.985	1.091	1.000	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2011	0.832	1.000	1.031	0.966	1.093	1.020	1.004	0.991	0.999	0.998	1.000	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2012	0.858	0.963	1.329	1.028	0.996	1.035	0.984	0.844	0.992	1.000	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2013	0.764	1.126	1.009	0.996	1.083	1.028	1.024	1.029	1.003	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2014	0.746	1.098	0.950	1.204	0.985	0.982	1.044	1.028	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2015	2.616	1.627	1.100	1.101	0.994	0.987	1.163	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2016	2.752	1.370	1.064	0.912	0.987	1.098	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2017	2.579	1.003	1.096	1.040	1.033	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2018	1.754	1.190	1.050	1.029	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2019	3.047	1.145	1.161	1.067	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2020	0.901	0.926	1.103	1.067	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2021	1.219	1.161	1.103	1.067	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2022	1.609	1.161	1.103	1.067	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960	875,960	875,960	875,960	1,128,314
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	829,668	830,629	830,629	830,629	830,629	830,629	830,629
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596	3,887,596	3,887,613	3,883,098	3,896,281	3,877,028	3,877,028
1997	2,396,340	3,296,691	3,392,934	3,805,286	4,531,604	4,223,037	4,260,238	4,287,861	4,079,282	4,113,314	3,902,281	3,929,176	4,047,234	4,192,485	4,241,564	4,333,493	4,357,186	4,532,100	4,636,226	4,652,717	4,571,271	4,602,339	4,610,824	4,690,855	4,690,855	4,620,899
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309	5,265,050	5,323,794	5,363,065	5,355,706	5,358,491	5,975,720	5,964,475	5,964,475
1999	4,037,062	5,571,871	6,545,350	6,787,456	7,241,227	7,671,357	7,817,662	8,271,935	8,254,562	9,206,158	9,560,694	9,605,104	10,021,467	9,989,020	9,992,011	10,080,720	10,105,116	9,843,136	9,558,326	9,546,992	9,578,572	9,674,953	9,674,953	9,666,343	9,666,343	9,666,343
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724	5,574,262	5,673,733	5,687,601	5,658,501	5,602,232	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254
2001	2,251,558	1,743,446	1,822,201	1,993,523	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958	2,231,893	2,231,893	2,255,449	2,246,989	2,223,792	2,223,792	2,223,792	2,223,792	2,223,792	2,223,792	2,223,792
2002	2,542,017	2,760,461	3,397,838	3,606,278	3,602,481	3,629,619	4,269,535	4,184,966	4,189,633	4,220,328	4,314,840	4,395,247	4,388,354	4,323,344	4,389,340	4,444,852	4,388,828	4,388,828	4,388,828	4,395,828	4,418,120	4,424,115	4,424,115	4,424,115	4,424,115	4,424,115
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245	3,081,544	3,188,294	3,379,908	3,460,316	3,438,965	3,555,208	3,555,208	3,555,208	3,560,033	3,560,033	3,560,033	3,560,033	3,560,033
2004	2,784,076	2,021,523	2,025,941	1,938,585	2,234,615	2,224,836	2,035,592	2,059,706	2,105,619	2,182,954	2,200,007	2,244,932	2,310,707	2,310,706	2,304,759	2,298,878	2,262,131	2,338,322	2,338,322	2,346,818	2,346,818	2,350,003	2,350,003	2,350,003	2,350,003	2,350,003
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022	2,411,172	2,717,437	2,667,437	2,729,436	2,755,939	2,754,019	2,765,098	2,796,715	2,806,877	2,806,877	2,810,686	2,810,686	2,810,686	2,810,686	2,810,686
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812	1,418,755	1,418,755	1,568,383	1,600,382	1,802,384	1,780,461	1,780,461	1,801,747	1,822,349	1,828,970	1,828,970	1,831,452	1,831,452	1,831,452	1,831,452	1,831,452
2007	3,104,642	3,506,428	3,324,034	3,133,446	3,015,593	3,206,641	3,266,444	3,297,905	3,388,641	3,693,115	3,736,832	3,754,548	3,878,579	3,932,825	3,932,825	4,020,125	4,023,882	4,071,988	4,118,548	4,133,512	4,133,512	4,139,122	4,139,122	4,139,122	4,139,122	4,139,122
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897	2,784,301	2,969,033	2,968,102	2,916,589	2,905,922	2,941,629	2,972,885	3,020,099	3,022,921	3,059,060	3,094,039	3,105,280	3,105,280	3,109,495	3,109,495	3,109,495	3,109,495	3,109,495
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872	1,869,496	1,884,955	2,023,386	2,059,214	2,059,214	1,987,951	2,027,535	2,061,506	2,094,246	2,096,202	2,121,263	2,145,518	2,153,314	2,153,314	2,156,236	2,156,236	2,156,236	2,156,236	2,156,236
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575	1,843,937	1,857,606	1,825,960	1,811,019	1,783,637	1,945,713	1,945,107	1,973,830	2,006,901	2,038,774	2,040,679	2,065,075	2,088,688	2,096,277	2,096,277	2,099,122	2,099,122	2,099,122	2,099,122	2,099,122
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817	1,567,380	1,598,788	1,605,837	1,590,668	1,588,365	1,584,634	1,584,634	1,615,864	1,639,725	1,667,199	1,693,676	1,695,259	1,715,526	1,735,142	1,741,446	1,741,446	1,743,809	1,743,809	1,743,809	1,743,809	1,743,809
2012	2,490,976	2,137,662	2,058,476	2,735,440	2,811,353	2,799,426	2,897,254	2,851,986	2,405,715	2,386,551	2,386,388	2,417,654	2,465,301	2,501,705	2,543,621	2,584,017	2,586,432	2,617,353	2,647,281	2,656,899	2,656,899	2,660,505	2,660,505	2,660,505	2,660,505	2,660,505
2013	3,392,371	2,592,125	2,918,959	2,945,843	2,934,795	3,178,441	3,266,982	3,343,869	3,441,847	3,452,011	3,479,961	3,525,554	3,595,036	3,648,122	3,709,246	3,768,154	3,771,675	3,816,766	3,860,409	3,874,435	3,874,435	3,879,693	3,879,693	3,879,693	3,879,693	3,879,693
2014	3,096,607	2,310,421	2,536,205	2,408,839	2,899,099	2,854,689	2,802,533	2,926,238	3,008,322	3,061,155	3,085,940	3,126,371	3,187,986	3,235,061	3,289,265	3,341,503	3,344,625	3,384,611	3,423,312	3,435,750	3,435,750	3,440,412	3,440,412	3,440,412	3,440,412	3,440,412
2015	421,275	1,102,257	1,793,275	1,972,587	2,171,046	2,157,798	2,129,592	2,477,479	2,497,241	2,541,099	2,561,673	2,595,235	2,646,383	2,685,460	2,730,455	2,773,819	2,776,411	2,809,603	2,841,729	2,852,054	2,852,054	2,855,924	2,855,924	2,855,924	2,855,924	2,855,924
2016	524,435	1,443,017	1,977,045	2,103,420	1,917,742	1,892,215	2,077,388	2,109,446	2,126,273	2,163,615	2,181,133	2,209,710	2,253,259	2,286,532	2,324,843	2,361,765	2,363,971	2,392,233	2,419,587	2,428,378	2,428,378	2,431,673	2,431,673	2,431,673	2,431,673	2,431,673
2017	786,588	2,028,990	2,036,039	2,230,762	2,320,748	2,396,824	2,436,556	2,474,158	2,493,893	2,537,692	2,558,239	2,591,756	2,642,835	2,681,860	2,726,795	2,770,100	2,772,688	2,805,836	2,837,919	2,848,230	2,848,230	2,852,096	2,852,096	2,852,096	2,852,096	2,852,096
2018	1,101,481	1,931,507	2,298,304	2,413,915	2,484,981	2,532,989	2,574,979	2,614,716	2,635,574	2,681,860	2,703,574	2,738,996	2,792,976	2,834,219	2,881,706	2,927,472	2,930,207	2,965,238	2,999,144	3,010,041	3,010,041	3,014,126	3,014,126	3,014,126	3,014,126	3,014,126
2019	668,549	2,037,158	2,332,992	2,707,603	2,887,766	2,943,556	2,992,351	3,038,530	3,062,768	3,116,557	3,141,791	3,182,954	3,245,684	3,293,611	3,348,795	3,401,979	3,405,158	3,445,867	3,485,268	3,497,931	3,497,931	3,502,678	3,502,678	3,502,678	3,502,678	3,502,678
2020	938,865	846,081	783,580	864,079	921,574	939,378	954,950	969,687	977,422	994,588	1,002,641	1,015,777	1,035,796	1,051,091	1,068,703	1,085,675	1,086,690	1,099,681	1,112,255	1,116,296	1,116,296	1,117,811	1,117,811	1,117,811	1,117,811	1,117,811
2021	759,214	925,849	1,075,169	1,185,623	1,264,514	1,288,943	1,310,310	1,330,531	1,341,145	1,364,698	1,375,748	1,393,772	1,421,241	1,442,228	1,466,392	1,489,681	1,491,073	1,508,899	1,526,152	1,531,697	1,531,697	1,533,775	1,533,775	1,533,775	1,533,775	1,533,775
2022	852,504	1,372,105	1,593,397	1,757,089	1,874,005	1,910,210	1,941,875	1,971,842	1,987,571	2,022,478	2,038,853	2,065,566	2,106,274	2,137,376	2,173,188	2,207,701	2,209,764	2,236,182	2,261,752	2,269,969	2,269,969	2,273,050	2,273,050	2,273,050	2,273,050	2,273,050

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994	1.000	1.000	1.000
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.001	1.000	1.000	1.000	1.000
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.001	1.010	0.996	1.014	1.035	1.000	1.000	0.999	1.003	0.995
1997	1.376	1.029	1.122	1.191	0.932	1.009	1.006	0.951	1.008	0.949	1.007	1.030	1.036	1.012	1.022	1.005	1.040	1.023	1.004	0.982	1.007	1.002	1.017	1.000
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066	1.050	1.011	1.007	0.999	1.001	1.115	0.998
1999	1.380	1.175	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.039	1.005	1.043	0.997	1.000	1.009	1.002	0.974	0.971	0.999	1.003	1.010	1.000	0.999	
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039	1.011	1.018	1.002	0.995	0.990	0.996	1.000		
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000	1.031	1.000	1.011	0.996	0.990	1.000	1.000			
2002	1.086	1.231	1.061	0.999	1.008	1.176	0.980	1.001	1.007	1.022	1.019	0.998	0.985	1.015	1.013	0.987	1.000	1.000	1.002	1.005				
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003	1.011	1.035	1.060	1.024	0.994	1.034	1.000					
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020	1.029	1.000	0.997	0.997	0.984	1.034	1.000						
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984	1.044	1.127	0.982	1.023	1.010	0.999	1.004							
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962	0.985	1.000	1.105	1.020	1.126	0.988	1.000								
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028	1.090	1.012	1.005	1.033	1.014	1.000	1.022									
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994	1.105	1.066	1.000	0.983	0.996	1.012	1.011										
2009	0.825	0.842	0.957	1.023	0.974	1.022	0.998	1.008	1.073	1.018	1.000	0.965	1.020											
2010	0.696	0.928	0.970	1.076	1.062	1.073	1.007	0.983	0.992	0.985	1.091	1.000												
2011	0.832	1.000	1.031	0.966	1.093	1.020	1.004	0.991	0.999	0.998	1.000													
2012	0.858	0.963	1.329	1.028	0.996	1.035	0.984	0.844	0.992	1.000														
2013	0.764	1.126	1.009	0.996	1.083	1.028	1.024	1.029	1.003															
2014	0.746	1.098	0.950	1.204	0.985	0.982	1.044	1.028																
2015	2.616	1.627	1.100	1.101	0.994	0.987	1.163																	
2016	2.752	1.370	1.064	0.912	0.987	1.098																		
2017	2.579	1.003	1.096	1.040	1.033																			
2018	1.754	1.190	1.050	1.029																				
2019	3.047	1.145	1.161																					
2020	0.901	0.926																						
2021	1.219																							
VOL WTD 3	1.609	1.125	1.103	0.996	1.006	1.015	1.067	0.971	0.998	0.995	1.030	0.988	1.015	1.028	1.011	0.994	1.008	1.011	0.998	0.997	1.004	1.000	1.035	0.998
VOL WTD 5	1.826	1.138	1.095	1.060	1.019	1.023	1.040	0.975	1.010	1.000	1.011	1.016	1.009	1.022	1.020	0.999	1.006	1.007	0.998	1.001	1.004	1.000	1.028	0.998
VOL WTD ALL	1.046	1.073	1.057	1.054	1.014	1.027	1.013	1.002	1.030	1.013	1.013	1.019	1.008	1.011	1.016	1.007	1.009	1.006	1.004	0.999	1.003	1.000	1.028	0.998
ARITH 3	1.723	1.087	1.102	0.994	1.004	1.022	1.077	0.967	0.998	0.994	1.030	0.987	1.015	1.046	1.007	0.994	1.011	1.011	0.997	0.998	1.002	1.000	1.044	0.999
ARITH 5	1.900	1.127	1.094	1.057	1.016	1.026	1.044	0.975	1.012	1.000	1.016	1.020	1.010	1.032	1.015	0.999	1.008	1.006	0.997	1.001	1.001	1.000	1.023	0.999
ARITH ALL	1.288	1.070	1.056	1.067	1.030	1.027	1.018	1.007	1.028	1.013	1.014	1.016	1.006	1.016	1.015	1.028	1.013	1.008	1.003	0.999	1.001	1.000	1.023	0.999
5 YR HI LO	1.851	1.113	1.087	1.057	1.004	1.017	1.024	1.001	0.998	0.999	1.002	1.010	1.015	1.011	1.010	0.996	1.005	1.001	0.998	1.003	1.002	1.000	1.007	NA
7 YR HI LO	2.184	1.161	1.064	1.039	1.018	1.029	1.015	1.008	1.027	0.999	1.010	1.033	1.011	1.017	1.015	1.000	1.005	1.006	1.000	1.000	1.001	1.000	1.010	0.998
ALL YR HI LO	1.208	1.062	1.049	1.048	1.011	1.021	1.005	1.008	1.018	1.008	1.013	1.020	1.009	1.011	1.014	1.001	1.012	1.010	1.002	1.000	1.001	1.000	1.010	0.998
SELECTED	1.609	1.161	1.103	1.067	1.019	1.017	1.015	1.008	1.018	1.008	1.013	1.020	1.015	1.017	1.016	1.001	1.012	1.011	1.004	1.000	1.001	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Incurred Losses

	Development in Months																								
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960	875,960	875,960
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	829,668	830,629	830,629	830,629	830,629
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596	3,887,596	3,887,613	3,883,098	3,896,281
1997	2,396,340	3,296,691	3,392,934	3,805,286	4,531,604	4,223,037	4,260,238	4,287,861	4,079,282	4,113,314	3,902,281	3,929,176	4,047,234	4,192,485	4,241,564	4,333,493	4,357,186	4,532,100	4,636,226	4,652,717	4,571,271	4,602,339	4,610,824	4,690,855
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309	5,265,050	5,323,794	5,363,065	5,355,706	5,358,491	5,975,720
1999	4,037,062	5,571,871	6,545,350	6,787,456	7,241,227	7,671,357	7,817,662	8,271,935	8,254,562	9,206,158	9,560,694	9,605,104	10,021,467	9,989,020	9,992,011	10,080,720	10,105,116	9,843,136	9,558,326	9,546,992	9,578,572	9,674,953	9,674,953	9,666,343
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724	5,574,262	5,673,733	5,687,601	5,658,501	5,602,232	5,578,254	5,578,254	
2001	2,251,558	1,743,446	1,822,201	1,993,523	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958	2,231,893	2,231,893	2,255,449	2,246,989	2,223,792	2,223,792	2,223,792		
2002	2,542,017	2,760,461	3,397,838	3,606,278	3,602,481	3,629,619	4,269,535	4,184,966	4,189,633	4,220,328	4,314,840	4,395,247	4,388,354	4,323,344	4,389,340	4,444,852	4,388,828	4,388,828	4,388,828	4,395,828	4,418,120			
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245	3,081,544	3,188,294	3,379,908	3,460,316	3,438,965	3,555,208	3,555,208				
2004	2,784,076	2,021,523	2,025,941	1,938,585	2,234,615	2,224,836	2,035,592	2,059,706	2,105,619	2,182,954	2,200,007	2,244,932	2,310,707	2,310,706	2,304,759	2,298,878	2,262,131	2,338,322	2,338,322					
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022	2,411,172	2,717,437	2,667,437	2,729,436	2,755,939	2,754,019	2,765,098						
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812	1,418,755	1,418,755	1,568,383	1,600,382	1,802,384	1,780,461	1,780,461							
2007	3,104,642	3,506,428	3,324,034	3,133,446	3,015,593	3,206,641	3,266,444	3,297,905	3,388,641	3,693,115	3,736,832	3,754,548	3,878,579	3,932,825	3,932,825	4,020,125								
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897	2,784,301	2,969,033	2,968,102	2,916,589	2,905,922	2,941,629	2,972,885									
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872	1,869,496	1,884,955	2,023,386	2,059,214	2,059,214	1,987,951	2,027,535										
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575	1,843,937	1,857,606	1,825,960	1,811,019	1,783,637	1,945,713	1,945,107											
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817	1,567,380	1,598,788	1,605,837	1,590,668	1,588,365	1,584,634	1,584,634												
2012	2,490,976	2,137,662	2,058,476	2,735,440	2,811,353	2,799,426	2,897,254	2,851,986	2,405,715	2,386,551	2,386,388													
2013	3,392,371	2,592,125	2,918,959	2,945,843	2,934,795	3,178,441	3,266,982	3,343,869	3,441,847	3,452,011														
2014	3,096,607	2,310,421	2,536,205	2,408,839	2,899,099	2,854,689	2,802,533	2,926,238	3,008,322															
2015	421,275	1,102,257	1,793,275	1,972,587	2,171,046	2,157,798	2,129,592	2,477,479																
2016	524,435	1,443,017	1,977,045	2,103,420	1,917,742	1,892,215	2,077,388																	
2017	786,588	2,028,990	2,036,039	2,230,762	2,320,748	2,396,824																		
2018	1,101,481	1,931,507	2,298,304	2,413,915	2,484,981																			
2019	668,549	2,037,158	2,332,992	2,707,603																				
2020	938,865	846,081	783,580																					
2021	759,214	925,849																						
2022	852,504																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	2,981,045	3,109,495	3,045,270	2,664	1,143
2009	2,263,127	2,156,236	2,209,681	2,662	830
2010	1,945,107	2,099,122	2,022,115	2,622	771
2011	1,861,269	1,743,809	1,802,539	2,623	687
2012	2,813,870	2,660,505	2,737,187	2,617	1,046
2013	3,933,182	3,879,693	3,906,437	2,603	1,501
2014	3,104,695	3,440,412	3,272,553	2,573	1,272
2015	2,704,196	2,855,924	2,780,060	2,530	1,099
2016	2,490,286	2,431,673	2,460,980	2,509	981
2017	2,799,997	2,852,096	2,826,046	2,489	1,135
2018	3,245,380	3,014,126	3,129,753	2,487	1,258
2019	2,867,197	3,502,678	3,184,938	2,413	1,320
2020	966,130	1,117,811	1,041,971	2,408	433
2021	925,849	1,533,775	1,229,812	2,405	511
2022	3,391,928	2,273,050	2,832,489	2,371	1,195
TOTAL	38,293,257	38,670,405	38,481,831	37,976	1,013

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	1,143	862	934	2,487,752	11.7%	291,876	2,612,744	2,904,619	2,972,885	(68,266)	360,142	1,090
2009	2,662	830	638	915	2,436,167	13.5%	328,970	1,945,535	2,274,504	2,027,535	246,970	82,000	854
2010	2,622	771	605	897	2,351,569	15.5%	363,657	1,625,448	1,989,105	1,945,107	43,998	319,659	759
2011	2,623	687	550	879	2,305,417	17.2%	397,078	1,532,420	1,929,498	1,584,634	344,864	52,214	736
2012	2,617	1,046	855	861	2,254,140	20.4%	460,555	2,268,503	2,729,058	2,386,388	342,670	117,885	1,043
2013	2,603	1,501	1,251	844	2,197,240	23.2%	510,016	3,047,996	3,558,011	3,452,011	106,001	404,015	1,367
2014	2,573	1,272	1,082	827	2,128,478	26.4%	562,184	2,321,900	2,884,084	3,008,322	(124,238)	686,422	1,121
2015	2,530	1,099	954	811	2,051,049	29.4%	603,298	1,938,080	2,541,378	2,477,479	63,899	539,399	1,004
2016	2,509	981	869	794	1,993,344	33.7%	671,757	1,711,971	2,383,728	2,077,388	306,340	365,417	950
2017	2,489	1,135	1,026	779	1,937,905	40.2%	779,242	1,808,008	2,587,250	2,396,824	190,426	588,816	1,039
2018	2,487	1,258	1,161	763	1,897,621	47.3%	898,126	1,889,816	2,787,942	2,484,981	302,962	595,165	1,121
2019	2,413	1,320	1,242	748	1,804,334	57.5%	1,036,902	1,470,814	2,507,716	2,707,603	(199,887)	1,236,789	1,039
2020	2,408	433	416	733	1,764,584	72.6%	1,281,767	400,210	1,681,977	783,580	898,396	383,370	698
2021	2,405	511	501	718	1,727,138	93.4%	1,612,586	233,590	1,846,176	925,849	920,327	692,259	768
2022	2,371	1,195	1,195	704	1,668,666	93.4%	1,557,993	219,104	1,777,097	852,504	924,593	633,400	750
TOTAL	37,976				31,005,402		11,356,006	25,026,138	36,382,144	32,083,090	4,299,054	7,056,952	958

Pure Premium Selection		Trend =	0.980
3-Year Average	704		
5-Year Average	903		
All Year Average	880		
Selected Pure Premium	704		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Closure
Incurred Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT IBNR	(8) EXPECTED IBNR	(9) INCURRED LOSSES	(10) INDICATED ULTIMATE	(11) PAID LOSSES	(12) UNPAID LOSS	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	1,143	862	934	2,487,752	6.0%	148,489	2,972,885	3,121,374	2,612,744	508,630	360,142	1,172
2009	2,662	830	638	915	2,436,167	7.3%	178,744	2,027,535	2,206,278	1,945,535	260,744	82,000	829
2010	2,622	771	605	897	2,351,569	9.1%	214,651	1,945,107	2,159,759	1,625,448	534,311	319,659	824
2011	2,623	687	550	879	2,305,417	10.3%	237,531	1,584,634	1,822,166	1,532,420	289,746	52,214	695
2012	2,617	1,046	855	861	2,254,140	11.0%	248,488	2,386,388	2,634,876	2,268,503	366,373	117,885	1,007
2013	2,603	1,501	1,251	844	2,197,240	12.6%	275,957	3,452,011	3,727,968	3,047,996	679,972	404,015	1,432
2014	2,573	1,272	1,082	827	2,128,478	13.3%	282,050	3,008,322	3,290,372	2,321,900	968,472	686,422	1,279
2015	2,530	1,099	954	811	2,051,049	14.6%	298,830	2,477,479	2,776,309	1,938,080	838,229	539,399	1,097
2016	2,509	981	869	794	1,993,344	16.0%	318,192	2,077,388	2,395,579	1,711,971	683,608	365,417	955
2017	2,489	1,135	1,026	779	1,937,905	17.6%	340,209	2,396,824	2,737,033	1,808,008	929,025	588,816	1,100
2018	2,487	1,258	1,161	763	1,897,621	22.7%	430,742	2,484,981	2,915,723	1,889,816	1,025,907	595,165	1,172
2019	2,413	1,320	1,242	748	1,804,334	29.9%	539,505	2,707,603	3,247,108	1,470,814	1,776,294	1,236,789	1,346
2020	2,408	433	416	733	1,764,584	39.6%	699,410	783,580	1,482,990	400,210	1,082,780	383,370	616
2021	2,405	511	501	718	1,727,138	62.5%	1,079,377	925,849	2,005,226	233,590	1,771,636	692,259	834
2022	2,371	1,195	1,195	704	1,668,666	62.5%	1,042,835	852,504	1,895,339	219,104	1,676,235	633,400	799
TOTAL	37,976				31,005,402		6,335,009	32,083,090	38,418,099	25,026,138	13,391,962	7,056,952	1,012

Pure Premium Selection

Trend = 0.980

3-Year Average	704
5-Year Average	903
All Year Average	880
Selected Pure Premium	704

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	3,458,682	2,930,701	3,458,682	527,981	-	527,981
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,380,349	2,220,428	2,380,349	159,921	-	159,921
1997	3,873,160	3,678,448	3,713,448	35,000	159,713	194,713
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,365,025	4,126,675	4,365,025	238,350	-	238,350
2001	1,094,640	1,026,602	1,055,182	28,580	39,458	68,037
2002	4,534,564	4,210,452	4,531,430	320,978	3,134	324,113
2003	3,362,272	3,011,404	3,362,272	350,868	-	350,868
2004	4,808,890	4,338,651	4,512,461	173,811	296,428	470,239
2005	2,192,158	1,933,923	2,078,924	145,001	113,234	258,235
2006	3,294,278	2,833,223	2,979,449	146,225	314,830	461,055
2007	976,698	816,275	835,778	19,502	140,921	160,423
2008	2,528,540	2,062,340	2,129,799	67,459	398,741	466,200
2009	943,108	943,108	943,108	-	-	-
2010	223,439	223,439	223,439	-	-	-
2011	2,030,174	1,456,728	2,017,508	560,780	12,666	573,446
2012	1,110,462	758,294	1,020,206	261,912	90,256	352,168
2013	1,439,871	901,545	998,657	97,112	441,214	538,326
2014	514,407	301,110	419,807	118,697	94,600	213,297
2015	2,867,990	1,564,169	1,838,141	273,972	1,029,849	1,303,821
2016	1,666,651	849,586	1,083,599	234,013	583,051	817,065
2017	1,920,992	897,982	1,250,328	352,346	670,664	1,023,010
2018	1,064,113	417,839	790,771	372,932	273,342	646,274
2019	1,975,262	804,016	1,415,866	611,850	559,397	1,171,246
2020	775,364	198,330	451,429	253,099	323,936	577,034
2021	500,773	60,751	155,916	95,166	344,857	440,022
2022	88,000	-	88,000	88,000	-	88,000
TOTAL	62,812,105	50,775,445	56,921,814	6,146,369	5,890,291	12,036,660

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043	1.010	1.020	1.018	1.006	1.004
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	1.001	1.012	1.007	1.007	1.000	1.003
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043	1.081	1.007	1.000	1.017	1.000	1.004	1.009
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005	1.008	1.010	1.009	1.012	1.002	1.000	1.000	1.001
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092	1.081	1.015	1.038	1.023	1.006	1.002	1.001	1.002	1.001
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012	1.004	1.002	1.006	1.012	1.007	1.007	1.000	1.000	1.002	1.001
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.076	1.157	1.053	1.017	1.032	1.036	1.009	1.034	1.025	1.024	1.028	1.012	1.097	1.016	1.015	1.002	1.000	1.002	1.001
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010	1.033	1.097	1.051	1.044	1.036	1.015	1.008	1.008	1.002	1.000	1.002	1.001
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065	1.072	1.035	1.077	1.032	1.026	1.020	1.005	1.010	1.008	1.002	1.000	1.002	1.001
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080	1.108	1.059	1.037	1.014	1.019	1.014	1.020	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041	1.049	1.023	1.044	1.027	1.011	1.015	1.001	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103	1.033	1.092	1.032	1.053	1.025	1.019	1.016	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.101	1.326	1.291	1.157	1.015	1.007	1.000	1.003	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2007	45.101	1.733	1.075	1.017	1.041	1.044	1.029	1.102	1.029	1.011	1.015	1.033	1.000	1.000	1.006	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2008		1.535	1.328	1.727	1.493	1.274	1.276	1.178	1.118	1.138	1.053	1.049	1.077	1.009	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2009	2.291	1.458	1.263	1.107	1.204	1.079	1.036	1.033	1.004	1.008	1.020	1.000	1.000	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2010		2.208	2.273	1.135	1.042	1.130	1.052	1.017	1.040	1.000	1.000	1.000	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2011	2.002	2.024	1.869	1.704	1.133	1.260	1.127	1.089	1.266	1.256	1.161	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2012	6.056	1.931	1.627	1.289	1.221	1.139	1.025	1.143	1.020	1.041	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2013		2.029	1.850	2.184	1.178	1.014	1.069	1.032	1.008	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2014		3.013	1.147	1.138	1.313	1.128	1.116	1.046	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2015	5.351	1.634	1.133	1.044	1.107	1.042	1.013	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2016	4.953	1.891	1.395	1.131	1.324	1.102	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2017		2.180	1.523	1.277	1.064	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2018	6.785	1.824	1.256	1.116	1.190	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2019	1.510	1.163	1.068	1.116	1.107	1.014	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2020		5.505	1.291	1.189	1.190	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2021		2.108	1.291	1.189	1.190	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001
2022	13.975	2.108	1.291	1.189	1.190	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000	1.002	1.001

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	2,757,576	2,813,689	2,862,976	2,879,778
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933	2,811,884	2,845,490	2,864,027	2,884,276	2,884,276
1996	-	17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584	2,139,915	2,154,274	2,154,274	2,191,849	2,191,849	2,200,780
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892	3,559,664	3,594,408	3,626,458	3,669,572	3,678,448	3,678,448	3,678,448
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,299	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678	2,382,158	2,418,884	2,510,541	2,568,757	2,584,769	2,590,454	2,593,088	2,598,831
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422	2,627,746	2,634,286	2,650,903	2,683,553	2,702,953	2,722,748	2,722,748	2,723,595	2,729,628
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627	3,426,721	3,508,911	3,605,836	3,649,865	4,003,655	4,067,021	4,126,675	4,133,368	4,134,655	4,143,813
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324	805,227	883,218	928,198	968,904	1,003,341	1,018,271	1,026,602	1,035,310	1,036,989	1,037,312	1,039,609
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469	3,483,473	3,604,479	3,881,563	4,004,641	4,106,762	4,189,494	4,210,452	4,252,719	4,288,790	4,295,746	4,297,084	4,306,601
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479	2,565,592	2,717,089	2,817,658	2,856,078	2,910,296	2,950,945	3,011,404	3,042,735	3,073,279	3,099,347	3,104,374	3,105,340	3,112,218
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274	3,851,449	3,939,069	4,112,757	4,223,202	4,271,607	4,334,593	4,338,651	4,419,192	4,465,169	4,509,993	4,548,247	4,555,624	4,557,042	4,567,136
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208	1,535,671	1,677,117	1,731,576	1,823,327	1,868,233	1,903,410	1,933,923	1,977,797	2,014,512	2,035,471	2,055,904	2,073,342	2,076,705	2,077,352	2,081,953
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,395,888	1,851,282	2,389,601	2,764,255	2,804,645	2,823,843	2,824,736	2,833,223	2,906,214	2,972,146	3,027,320	3,058,817	3,089,523	3,115,728	3,120,781	3,121,753	3,128,667
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229	765,632	774,413	785,680	811,327	811,327	811,327	816,275	840,003	861,644	881,192	897,550	906,888	915,992	923,761	925,259	925,547	927,597
2008	-	134,080	205,854	273,370	472,091	704,738	898,168	1,146,107	1,350,478	1,510,195	1,717,896	1,809,564	1,898,415	2,044,361	2,062,340	2,113,227	2,174,655	2,230,679	2,281,286	2,323,635	2,347,810	2,371,379	2,391,493	2,395,372	2,396,118	2,401,425
2009	140,848	322,681	470,506	594,291	657,716	792,191	854,383	884,880	913,849	917,398	924,493	943,108	943,108	943,108	978,291	1,002,430	1,031,569	1,058,145	1,082,150	1,102,239	1,113,707	1,124,887	1,134,428	1,136,268	1,136,622	1,139,139
2010	-	29,916	66,069	150,177	170,474	177,574	200,650	211,147	214,795	223,439	223,439	223,439	223,439	232,877	241,564	247,524	254,720	261,282	267,209	272,170	275,002	277,762	280,118	280,572	280,660	281,281
2011	34,886	69,855	141,373	264,278	450,244	510,173	642,965	724,726	789,478	999,155	1,254,601	1,456,728	1,531,616	1,596,310	1,655,861	1,696,717	1,746,039	1,791,021	1,831,653	1,865,655	1,885,066	1,903,989	1,920,138	1,923,253	1,923,852	1,928,113
2012	17,882	108,288	209,139	340,184	438,523	535,264	609,736	624,675	714,076	728,666	758,294	796,800	837,762	873,148	905,721	928,068	955,046	979,650	1,001,875	1,020,474	1,031,091	1,041,441	1,050,275	1,051,978	1,052,306	1,054,637
2013	-	82,788	168,015	310,824	678,846	799,890	810,824	866,715	894,386	901,545	983,235	1,033,163	1,086,276	1,132,159	1,174,395	1,203,372	1,238,352	1,270,255	1,299,073	1,323,188	1,336,955	1,350,376	1,361,830	1,364,039	1,364,463	1,367,485
2014	-	44,273	133,385	153,017	174,091	228,658	257,829	287,806	301,110	322,085	351,270	369,107	388,082	404,474	419,563	429,915	442,412	453,810	464,106	472,721	477,639	482,434	486,526	487,315	487,467	488,547
2015	129,482	692,863	1,132,035	1,282,058	1,339,001	1,482,178	1,544,354	1,564,169	1,678,788	1,795,732	1,958,445	2,057,893	2,163,686	2,255,077	2,339,204	2,396,921	2,466,597	2,530,142	2,587,542	2,635,577	2,662,997	2,689,730	2,712,544	2,716,944	2,717,790	2,723,809
2016	39,426	195,261	369,308	515,059	582,529	770,994	849,586	908,972	975,580	1,043,538	1,138,095	1,195,886	1,257,365	1,310,474	1,359,362	1,392,903	1,433,392	1,470,320	1,503,677	1,531,590	1,547,525	1,563,060	1,576,318	1,578,875	1,579,366	1,582,864
2017	-	199,097	434,059	660,895	843,710	897,982	979,238	1,047,687	1,124,459	1,202,789	1,311,775	1,378,386	1,449,247	1,510,461	1,566,809	1,605,469	1,652,137	1,694,700	1,733,147	1,765,321	1,783,687	1,801,593	1,816,874	1,819,821	1,820,387	1,824,420
2018	24,083	163,397	298,091	374,370	417,839	497,427	542,438	580,355	622,882	666,272	726,644	763,542	802,794	836,703	867,917	889,332	915,183	938,761	960,058	977,880	988,054	997,973	1,006,438	1,008,070	1,008,384	1,010,617
2019	428,443	647,159	752,622	804,016	897,371	993,325	1,006,903	1,077,285	1,156,227	1,236,769	1,348,835	1,417,327	1,490,190	1,553,133	1,611,073	1,650,825	1,698,812	1,742,577	1,782,111	1,815,193	1,834,079	1,852,490	1,868,203	1,871,233	1,871,815	1,875,961
2020	-	36,025	198,330	255,959	304,458	362,450	395,247	422,875	453,862	485,478	529,468	556,354	584,955	609,663	632,406	648,011	666,847	684,027	699,545	712,531	719,944	727,172	733,340	734,529	734,758	736,385
2021	-	60,751	128,092	165,312	196,636	234,090	255,272	273,116	293,129	313,549	341,960	359,324	377,796	393,754	408,443	418,521	430,687	441,782	451,805	460,192	464,980	469,648	473,631	474,399	474,547	475,598
2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043	1.010	1.020	1.018
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	1.001	1.012	1.007	1.007
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043	1.081	1.007	1.000	1.017	1.000
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005	1.008	1.010	1.009	1.012	1.002	1.000
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092	1.081	1.015	1.038	1.023	1.006	1.002	1.001
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012	1.004	1.002	1.006	1.012	1.007	1.007	1.000	
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.076	1.157	1.053	1.017	1.032	1.036	1.009	1.034	1.025	1.024	1.028	1.012	1.097	1.016	1.015		
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010	1.033	1.097	1.051	1.044	1.036	1.015	1.008			
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065	1.072	1.035	1.077	1.032	1.026	1.020	1.005				
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080	1.108	1.059	1.037	1.014	1.019	1.014	1.020					
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041	1.049	1.023	1.044	1.027	1.011	1.015	1.001						
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103	1.033	1.092	1.032	1.053	1.025	1.019	1.016							
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.101	1.326	1.291	1.157	1.015	1.007	1.000	1.003								
2007	45.101	1.733	1.075	1.017	1.041	1.044	1.029	1.102	1.029	1.011	1.015	1.033	1.000	1.000	1.006									
2008		1.535	1.328	1.727	1.493	1.274	1.276	1.178	1.118	1.138	1.053	1.049	1.077	1.009										
2009	2.291	1.458	1.263	1.107	1.204	1.079	1.036	1.033	1.004	1.008	1.020	1.000	1.000											
2010		2.208	2.273	1.135	1.042	1.130	1.052	1.017	1.040	1.000	1.000	1.000												
2011	2.002	2.024	1.869	1.704	1.133	1.260	1.127	1.089	1.266	1.256	1.161													
2012	6.056	1.931	1.627	1.289	1.221	1.139	1.025	1.143	1.020	1.041														
2013		2.029	1.850	2.184	1.178	1.014	1.069	1.032	1.008															
2014		3.013	1.147	1.138	1.313	1.128	1.116	1.046																
2015	5.351	1.634	1.133	1.044	1.107	1.042	1.013																	
2016	4.953	1.891	1.395	1.131	1.324	1.102																		
2017		2.180	1.523	1.277	1.064																			
2018	6.785	1.824	1.256	1.116																				
2019	1.510	1.163	1.068																					
2020		5.505																						
2021																								
VOL WTD 3	1.736	1.475	1.239	1.189	1.140	1.068	1.040	1.073	1.097	1.146	1.092	1.030	1.040	1.007	1.009	1.010	1.016	1.013	1.022	1.044	1.012	1.010	1.002	1.000
VOL WTD 5	2.445	1.654	1.218	1.125	1.155	1.067	1.052	1.073	1.069	1.114	1.066	1.080	1.030	1.027	1.021	1.027	1.023	1.018	1.017	1.037	1.013	1.009	1.008	1.005
VOL WTD ALL	4.054	1.585	1.327	1.240	1.210	1.139	1.146	1.105	1.098	1.101	1.062	1.060	1.048	1.044	1.034	1.029	1.026	1.026	1.018	1.032	1.015	1.010	1.008	1.005
ARITH 3	1.510	2.831	1.282	1.175	1.165	1.090	1.066	1.074	1.098	1.099	1.060	1.016	1.026	1.005	1.010	1.011	1.017	1.013	1.025	1.039	1.010	1.009	1.002	1.005
ARITH 5	4.148	2.513	1.275	1.141	1.197	1.085	1.070	1.066	1.068	1.088	1.050	1.048	1.025	1.023	1.019	1.025	1.026	1.022	1.019	1.033	1.014	1.009	1.008	1.005
ARITH ALL	39.441	1.960	1.597	1.328	1.247	1.152	1.146	1.098	1.093	1.100	1.061	1.055	1.049	1.043	1.036	1.033	1.029	1.032	1.021	1.032	1.014	1.009	1.008	1.005
5 YR HI LO	NA	1.965	1.261	1.128	1.200	1.090	1.070	1.056	1.023	1.062	1.029	1.027	1.016	1.020	1.019	1.015	1.022	1.022	1.018	1.022	1.011	1.008	1.004	NA
7 YR HI LO	5.152	2.108	1.291	1.190	1.190	1.108	1.060	1.069	1.043	1.091	1.056	1.044	1.029	1.034	1.025	1.029	1.021	1.023	1.015	1.031	1.010	1.008	1.002	1.000
ALL YR HI LO	13.975	1.870	1.481	1.305	1.212	1.143	1.107	1.090	1.070	1.084	1.051	1.051	1.042	1.037	1.025	1.028	1.026	1.028	1.019	1.031	1.010	1.008	1.002	1.000
SELECTED	13.975	2.108	1.291	1.189	1.190	1.090	1.070	1.073	1.070	1.091	1.051	1.051	1.042	1.037	1.025	1.029	1.026	1.023	1.019	1.010	1.010	1.008	1.002	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	2,757,576	2,813,689
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933	2,811,884	2,845,490	2,864,027
1996	-	17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584	2,139,915	2,154,274	2,154,274	2,191,849
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892	3,559,664	3,594,408	3,626,458	3,669,572	3,678,448
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,299	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678	2,382,158	2,418,884	2,510,541	2,568,757	2,584,769	2,590,454
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422	2,627,746	2,634,286	2,650,903	2,683,553	2,702,953	2,722,748	2,722,748
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627	3,426,721	3,508,911	3,605,836	3,649,865	4,003,655	4,067,021	4,126,675	
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324	805,227	883,218	928,198	968,904	1,003,341	1,018,271	1,026,602		
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469	3,483,473	3,604,479	3,881,563	4,004,641	4,106,762	4,189,494	4,210,452			
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479	2,565,592	2,717,089	2,817,658	2,856,078	2,910,296	2,950,945	3,011,404				
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274	3,851,449	3,939,069	4,112,757	4,223,202	4,271,607	4,334,593	4,338,651					
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208	1,535,671	1,677,117	1,731,576	1,823,327	1,868,233	1,903,410	1,933,923						
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,395,888	1,851,282	2,389,601	2,764,255	2,804,645	2,823,843	2,824,736	2,833,223							
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229	765,632	774,413	785,680	811,327	811,327	811,327	816,275								
2008	-	134,080	205,854	273,370	472,091	704,738	898,168	1,146,107	1,350,478	1,510,195	1,717,896	1,809,564	1,898,415	2,044,361	2,062,340									
2009	140,848	322,681	470,506	594,291	657,716	792,191	854,383	884,880	913,849	917,398	924,493	943,108	943,108	943,108										
2010	-	29,916	66,069	150,177	170,474	177,574	200,650	211,147	214,795	223,439	223,439	223,439	223,439											
2011	34,886	69,855	141,373	264,278	450,244	510,173	642,965	724,726	789,478	999,155	1,254,601	1,456,728												
2012	17,882	108,288	209,139	340,184	438,523	535,264	609,736	624,675	714,076	728,666	758,294													
2013	-	82,788	168,015	310,824	678,846	799,890	810,824	866,715	894,386	901,545														
2014	-	44,273	133,385	153,017	174,091	228,658	257,829	287,806	301,110															
2015	129,482	692,863	1,132,035	1,282,058	1,339,001	1,482,178	1,544,354	1,564,169																
2016	39,426	195,261	369,308	515,059	582,529	770,994	849,586																	
2017	-	199,097	434,059	660,895	843,710	897,982																		
2018	24,083	163,397	298,091	374,370	417,839																			
2019	428,443	647,159	752,622	804,016																				
2020	-	36,025	198,330																					
2021	-	60,751																						
2022	-																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	3,458,682	2,930,701	3,458,682	527,981	-	527,981
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,380,349	2,220,428	2,380,349	159,921	-	159,921
1997	3,713,448	3,678,448	3,713,448	35,000	-	35,000
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,365,025	4,126,675	4,365,025	238,350	-	238,350
2001	1,059,580	1,026,602	1,055,182	28,580	4,398	32,978
2002	4,572,596	4,210,452	4,531,430	320,978	41,166	362,144
2003	3,393,347	3,011,404	3,362,272	350,868	31,075	381,943
2004	4,650,372	4,338,651	4,512,461	173,811	137,910	311,721
2005	2,159,058	1,933,923	2,078,924	145,001	80,134	225,135
2006	3,119,616	2,833,223	2,979,449	146,225	140,167	286,393
2007	889,657	816,275	835,778	19,502	53,880	73,382
2008	2,292,566	2,062,340	2,129,799	67,459	162,766	230,225
2009	1,025,753	943,108	943,108	-	82,644	82,644
2010	245,094	223,439	223,439	-	21,656	21,656
2011	2,231,612	1,456,728	2,017,508	560,780	214,104	774,884
2012	1,151,209	758,294	1,020,206	261,912	131,003	392,915
2013	1,159,779	901,545	998,657	97,112	161,123	258,234
2014	498,604	301,110	419,807	118,697	78,797	197,494
2015	2,293,498	1,564,169	1,838,141	273,972	455,357	729,329
2016	1,451,309	849,586	1,083,599	234,013	367,709	601,723
2017	1,806,555	897,982	1,250,328	352,346	556,228	908,573
2018	1,204,189	417,839	790,771	372,932	413,419	786,351
2019	2,390,418	804,016	1,415,866	611,850	974,552	1,586,402
2020	837,469	198,330	451,429	253,099	386,040	639,139
2021	353,678	60,751	155,916	95,166	197,762	292,927
2022	358,355	-	88,000	88,000	270,355	358,355
TOTAL	61,884,060	50,775,445	56,921,814	6,146,369	4,962,246	11,108,615

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.977	0.872	1.009	1.044	0.972	1.047	0.992	1.021	1.045	1.023	1.052	1.008	0.962	1.000	1.000	1.001
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	1.002	1.012	1.000	1.001	1.000	1.000
1996	0.783	1.411	1.368	1.380	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181	1.000	1.000	1.000	1.000	1.015	1.000	1.000
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.084	1.034	1.005	1.005	1.002	1.014	1.002	1.001	0.997	1.003	1.000	1.000	1.000	1.000
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079	1.017	1.023	1.000	1.002	1.010	1.000	1.000	1.000	1.000
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999	0.997	1.000	1.000	0.991	1.000	0.999	1.000	1.000	1.000	1.000
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998	1.028	1.002	0.979	0.998	1.085	1.018	1.040	1.000	1.000	1.000	1.000
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109	1.000	1.000	1.035	1.000	0.953	1.000	1.000	1.004	1.000	1.000	1.000	1.000
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.013	1.024	1.015	1.041	1.001	1.015	1.000	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007	0.996	1.012	1.024	0.999	1.003	1.009	1.033	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022	0.997	1.008	1.025	1.007	1.036	0.999	1.000	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.023	1.000	1.013	1.029	1.038	1.054	1.034	1.001	1.052	0.997	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2006	1.152	1.011	1.056	1.179	0.992	1.005	1.068	1.082	1.148	1.060	1.015	1.002	0.998	1.006	0.970	1.016	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139	1.000	1.000	1.000	0.963	1.000	1.000	1.000	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2008	1.310	1.076	1.062	1.284	1.133	1.178	1.124	1.113	1.056	1.015	1.013	1.016	1.009	1.000	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2009	0.838	0.960	1.065	1.041	1.068	1.009	0.984	0.981	1.000	1.011	0.996	1.000	1.000	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2010	1.292	1.275	1.339	1.000	1.000	1.038	1.037	0.947	0.994	1.000	1.000	1.000	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2011	1.186	0.941	2.132	1.086	1.074	1.630	0.747	1.074	1.007	1.246	1.000	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2012	1.319	1.158	1.159	1.093	1.463	0.990	1.158	1.000	1.000	1.000	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2013	1.390	0.989	1.040	1.623	0.957	0.959	1.062	1.000	0.991	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2014	1.602	0.891	1.000	1.121	1.000	1.101	1.191	1.000	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2015	1.817	1.132	0.979	0.937	1.026	1.074	1.000	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2016	0.838	1.184	1.170	1.082	1.013	1.031	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2017	2.792	1.314	1.247	0.979	1.011	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2018	3.151	1.170	1.056	1.026	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2019	1.422	0.953	0.979	1.109	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2020	1.172	1.426	1.099	1.109	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2021	0.512	1.223	1.099	1.109	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000
2022	1.795	1.223	1.099	1.109	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839	3,142,787	3,022,670	3,022,670	3,022,670
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	2,883,696	2,917,052	2,917,052	2,919,348	2,919,348
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436	2,344,436	2,344,436	2,344,436	2,344,436	2,380,349	2,380,349
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587	3,708,217	3,713,372	3,703,945	3,713,968	3,713,448	3,713,448	3,713,448
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819	2,905,273	2,970,679	2,971,774	2,976,737	3,005,904	3,005,904	3,005,904	3,005,904
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547	2,750,103	2,750,103	2,750,103	2,724,553	2,724,553	2,722,748	2,722,748	2,722,748	2,722,748
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662	3,878,829	3,886,359	3,805,884	3,798,781	4,123,209	4,199,099	4,365,025	4,365,025	4,365,025	4,365,025
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609	1,069,609	1,069,609	1,107,092	1,107,092	1,055,182	1,055,182	1,055,182	1,059,580	1,059,580	1,059,580	1,059,580
2002	2,103,792	2,136,359	2,292,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846	4,218,927	4,281,991	4,459,410	4,464,352	4,530,974	4,530,974	4,531,430	4,553,616	4,572,596	4,572,596	4,572,596	4,572,596
2003	2,188,347	2,037,947	2,300,433	2,453,916	2,162,594	2,516,185	2,638,216	2,645,657	2,689,486	2,669,997	2,918,788	3,102,947	3,124,594	3,111,514	3,149,028	3,223,096	3,218,366	3,228,365	3,256,297	3,362,272	3,362,797	3,379,262	3,393,347	3,393,347	3,393,347	3,393,347
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197	4,188,550	4,221,388	4,327,913	4,360,336	4,516,782	4,512,461	4,512,461	4,607,785	4,608,505	4,631,069	4,650,372	4,650,372	4,650,372	4,650,372
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223	1,801,967	1,899,621	1,963,983	1,965,504	2,067,863	2,061,727	2,078,924	2,095,029	2,139,286	2,139,620	2,150,096	2,159,058	2,159,058	2,159,058	2,159,058
2006	1,458,736	1,680,496	1,698,579	1,793,328	2,114,309	2,096,877	2,106,813	2,250,803	2,435,160	2,795,151	2,963,704	3,008,941	3,014,915	3,007,529	3,026,063	2,933,956	2,979,449	3,003,831	3,027,102	3,091,047	3,091,531	3,106,667	3,119,616	3,119,616	3,119,616	3,119,616
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453	867,453	867,453	867,453	835,778	835,778	835,778	835,778	849,684	856,638	863,274	881,510	881,648	885,965	889,657	889,657	889,657	889,657
2008	596,136	781,142	840,868	893,113	1,147,030	1,299,395	1,530,368	1,720,312	1,915,158	2,021,967	2,051,978	2,077,957	2,111,568	2,129,799	2,129,799	2,153,722	2,189,558	2,207,476	2,224,578	2,271,571	2,271,926	2,283,050	2,292,566	2,292,566	2,292,566	2,292,566
2009	1,008,223	844,876	811,301	864,241	899,372	960,149	968,896	953,538	935,849	935,849	946,493	943,108	943,108	943,108	952,927	963,631	979,665	987,682	995,333	1,016,359	1,016,518	1,021,495	1,025,753	1,025,753	1,025,753	1,025,753
2010	100,002	129,253	164,798	220,645	220,645	220,645	228,932	237,342	224,795	223,439	223,439	223,439	223,439	225,347	227,693	230,251	234,082	235,998	237,826	242,850	242,888	244,077	245,094	245,094	245,094	245,094
2011	443,503	526,138	494,996	1,055,259	1,146,204	1,230,702	2,005,572	1,497,560	1,608,103	1,619,827	2,017,512	2,017,508	2,034,435	2,051,812	2,073,173	2,096,460	2,131,343	2,148,785	2,165,432	2,211,175	2,211,521	2,222,349	2,231,612	2,231,612	2,231,612	2,231,612
2012	314,431	414,642	480,020	556,332	607,983	889,634	880,779	1,020,206	1,020,206	1,020,206	1,020,206	1,040,761	1,049,493	1,058,457	1,069,476	1,081,489	1,099,484	1,108,482	1,117,069	1,140,667	1,140,845	1,146,431	1,151,209	1,151,209	1,151,209	1,151,209
2013	445,007	618,612	611,639	636,393	1,032,995	989,033	948,554	1,007,339	1,007,339	998,657	1,027,801	1,048,509	1,057,306	1,066,337	1,077,438	1,089,540	1,107,669	1,116,734	1,125,385	1,149,158	1,149,338	1,154,965	1,159,779	1,159,779	1,159,779	1,159,779
2014	200,006	320,413	285,522	285,522	320,154	320,154	352,358	419,807	419,807	429,335	441,865	450,767	454,549	458,432	463,204	468,407	476,201	480,098	483,818	494,038	494,115	496,534	498,604	498,604	498,604	498,604
2015	883,506	1,605,384	1,817,239	1,779,882	1,667,846	1,711,516	1,838,141	1,838,141	1,931,044	1,974,873	2,032,507	2,073,457	2,090,853	2,108,712	2,130,666	2,154,598	2,190,449	2,208,374	2,225,483	2,272,495	2,272,850	2,283,978	2,293,498	2,293,498	2,293,498	2,293,498
2016	825,404	691,547	818,967	958,451	1,037,429	1,050,982	1,083,599	1,163,162	1,221,951	1,249,685	1,286,156	1,312,068	1,323,077	1,334,378	1,348,270	1,363,414	1,386,100	1,397,443	1,408,269	1,438,018	1,438,243	1,445,285	1,451,309	1,451,309	1,451,309	1,451,309
2017	276,255	771,193	1,013,157	1,263,398	1,236,321	1,250,328	1,348,839	1,447,877	1,521,056	1,555,579	1,600,977	1,633,232	1,646,935	1,661,002	1,678,295	1,697,146	1,725,385	1,739,505	1,752,981	1,790,011	1,790,291	1,799,057	1,806,555	1,806,555	1,806,555	1,806,555
2018	198,003	624,000	730,228	770,772	790,771	833,427	899,091	965,107	1,013,885	1,036,897	1,067,157	1,088,658	1,097,792	1,107,169	1,118,695	1,131,261	1,150,084	1,159,496	1,168,478	1,193,162	1,193,348	1,199,191	1,204,189	1,204,189	1,204,189	1,204,189
2019	1,067,059	1,517,150	1,445,774	1,415,866	1,569,747	1,654,423	1,784,772	1,915,818	2,012,647	2,058,328	2,118,398	2,161,078	2,179,210	2,197,823	2,220,705	2,245,648	2,283,014	2,301,697	2,319,528	2,368,527	2,368,898	2,380,496	2,390,418	2,390,418	2,390,418	2,390,418
2020	270,001	316,500	451,429	496,040	549,952	579,617	625,285	671,196	705,119	721,123	742,168	757,121	763,473	769,995	778,011	786,750	799,841	806,386	812,633	829,800	829,929	833,993	837,469	837,469	837,469	837,469
2021	304,601	155,916	190,646	209,487	232,254	244,783	264,069	283,458	297,784	304,543	313,431	319,746	322,428	325,182	328,568	332,258	337,787	340,551	343,189	350,439	350,494	352,210	353,678	353,678	353,678	353,678
2022	88,000	157,978	193,168	212,257	235,326	248,020	267,561	287,206	301,722	308,570	317,576	323,974	326,692	329,483	332,913	336,652	342,254	345,055	347,728	355,073	355,129	356,868	358,355	358,355	358,355	358,355

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.977	0.872	1.009	1.044	0.972	1.047	0.992	1.021	1.045	1.023	1.052	1.008	0.962	1.000
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	1.002	1.012	1.000	1.001
1996	0.783	1.411	1.368	1.380	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181	1.000	1.000	1.000	1.000	1.015
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.084	1.034	1.005	1.005	1.002	1.014	1.002	1.001	0.997	1.003	1.000	1.000
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079	1.017	1.023	1.000	1.002	1.010	1.000	1.000
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999	0.997	1.000	1.000	0.991	1.000	0.999	1.000	
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998	1.028	1.002	0.979	0.998	1.085	1.018	1.040		
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109	1.000	1.000	1.035	1.000	0.953	1.000	1.000			
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.013	1.024	1.015	1.041	1.001	1.015	1.000	1.000				
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007	0.996	1.012	1.024	0.999	1.003	1.009	1.033					
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022	0.997	1.008	1.025	1.007	1.036	0.999	1.000						
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.023	1.000	1.013	1.029	1.038	1.054	1.034	1.001	1.052	0.997	1.008							
2006	1.152	1.011	1.056	1.179	0.992	1.005	1.068	1.082	1.148	1.060	1.015	1.002	0.998	1.006	0.970	1.016								
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139	1.000	1.000	1.000	0.963	1.000	1.000	1.000									
2008	1.310	1.076	1.062	1.284	1.133	1.178	1.124	1.113	1.056	1.015	1.013	1.016	1.009	1.000										
2009	0.838	0.960	1.065	1.041	1.068	1.009	0.984	0.981	1.000	1.011	0.996	1.000	1.000											
2010	1.292	1.275	1.339	1.000	1.000	1.038	1.037	0.947	0.994	1.000	1.000	1.000												
2011	1.186	0.941	2.132	1.086	1.074	1.630	0.747	1.074	1.007	1.246	1.000													
2012	1.319	1.158	1.159	1.093	1.463	0.990	1.158	1.000	1.000	1.000														
2013	1.390	0.989	1.040	1.623	0.957	0.959	1.062	1.000	0.991															
2014	1.602	0.891	1.000	1.121	1.000	1.101	1.191	1.000																
2015	1.817	1.132	0.979	0.937	1.026	1.074	1.000																	
2016	0.838	1.184	1.170	1.082	1.013	1.031																		
2017	2.792	1.314	1.247	0.979	1.011																			
2018	3.151	1.170	1.056	1.026																				
2019	1.422	0.953	0.979																					
2020	1.172	1.426																						
2021	0.512																							
VOL WTD 3	1.212	1.069	1.082	1.024	1.018	1.062	1.040	1.000	1.001	1.139	0.999	1.010	1.005	1.003	1.002	1.021	1.002	1.008	1.006	1.035	1.010	1.020	1.000	1.004
VOL WTD 5	1.600	1.138	1.062	0.999	1.005	1.029	0.960	1.023	1.000	1.075	1.004	1.001	1.009	1.010	1.009	1.022	1.004	1.001	1.003	1.020	1.005	1.013	0.993	1.003
VOL WTD ALL	1.176	1.061	1.092	1.101	1.079	1.079	1.058	1.051	1.035	1.043	1.020	0.999	1.015	1.036	1.010	1.022	1.008	1.005	1.021	1.014	1.010	1.012	0.993	1.003
ARITH 3	1.035	1.183	1.094	1.029	1.017	1.069	1.084	1.000	1.000	1.082	0.999	1.005	1.003	1.002	1.007	1.016	1.003	1.008	0.995	1.029	1.006	1.016	1.000	1.003
ARITH 5	1.810	1.210	1.086	1.029	1.002	1.031	1.032	1.004	0.999	1.054	1.002	0.996	1.008	1.006	1.011	1.018	1.009	1.001	0.997	1.015	1.009	1.010	0.994	1.003
ARITH ALL	1.815	1.083	1.132	1.126	1.080	1.083	1.065	1.040	1.026	1.037	1.014	1.000	1.015	1.046	1.011	1.022	1.011	1.006	1.024	1.011	1.009	1.010	0.994	1.003
5 YR HI LO	1.795	1.223	1.068	1.029	1.008	1.032	1.073	1.000	0.998	1.009	1.000	1.001	1.003	1.002	1.010	1.017	1.004	1.003	0.999	1.000	1.001	1.004	1.000	NA
7 YR HI LO	1.608	1.151	1.049	1.060	1.025	1.047	1.048	1.011	1.000	1.017	1.006	1.003	1.003	1.009	1.009	1.016	1.003	1.005	1.005	1.000	1.000	1.004	1.000	1.000
ALL YR HI LO	1.270	1.087	1.099	1.109	1.054	1.053	1.070	1.036	1.023	1.029	1.019	1.008	1.013	1.030	1.011	1.016	1.006	1.008	1.009	1.000	1.000	1.004	1.000	1.000
SELECTED	1.795	1.223	1.099	1.109	1.054	1.079	1.073	1.051	1.023	1.029	1.020	1.008	1.009	1.010	1.011	1.017	1.008	1.008	1.021	1.000	1.005	1.004	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Incurred Losses

	Development in Months																								
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839	3,142,787	3,022,670
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	2,883,696	2,917,052	2,917,052
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436	2,344,436	2,344,436	2,344,436	2,344,436
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587	3,708,217	3,713,372	3,703,945	3,713,968	3,713,448
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819	2,905,273	2,970,679	2,971,774	2,976,737	3,005,904	3,005,904
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547	2,750,103	2,750,103	2,750,103	2,724,553	2,724,553	2,722,748	2,722,748
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662	3,878,829	3,886,359	3,805,884	3,798,781	4,123,209	4,199,099	4,365,025	
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609	1,069,609	1,069,609	1,107,092	1,107,092	1,055,182	1,055,182	1,055,182		
2002	2,103,792	2,136,359	2,292,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846	4,218,927	4,281,991	4,459,410	4,464,352	4,530,974	4,530,974	4,531,430			
2003	2,188,347	2,037,947	2,300,433	2,453,916	2,162,594	2,516,185	2,638,216	2,645,657	2,689,486	2,669,997	2,918,788	3,102,947	3,124,594	3,111,514	3,149,028	3,223,096	3,218,366	3,228,365	3,256,297	3,362,272				
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197	4,188,550	4,221,388	4,327,913	4,360,336	4,516,782	4,512,461	4,512,461					
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223	1,801,967	1,899,621	1,963,983	1,965,504	2,067,863	2,061,727	2,078,924						
2006	1,458,736	1,680,496	1,698,579	1,793,328	2,114,309	2,096,877	2,106,813	2,250,803	2,435,160	2,795,151	2,963,704	3,008,941	3,014,915	3,007,529	3,026,063	2,933,956	2,979,449							
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453	867,453	867,453	867,453	835,778	835,778	835,778	835,778								
2008	596,136	781,142	840,868	893,113	1,147,030	1,299,395	1,530,368	1,720,312	1,915,158	2,021,967	2,051,978	2,077,957	2,111,568	2,129,799	2,129,799									
2009	1,008,223	844,876	811,301	864,241	899,372	960,149	968,896	953,538	935,849	935,849	946,493	943,108	943,108	943,108										
2010	100,002	129,253	164,798	220,645	220,645	220,645	228,932	237,342	224,795	223,439	223,439	223,439	223,439											
2011	443,503	526,138	494,996	1,055,259	1,146,204	1,230,702	2,005,572	1,497,560	1,608,103	1,619,827	2,017,512	2,017,508												
2012	314,431	414,642	480,020	556,332	607,983	889,634	880,779	1,020,206	1,020,206	1,020,206	1,020,206													
2013	445,007	618,612	611,639	636,393	1,032,995	989,033	948,554	1,007,339	1,007,339	998,657														
2014	200,006	320,413	285,522	285,522	320,154	320,154	352,358	419,807	419,807															
2015	883,506	1,605,384	1,817,239	1,779,882	1,667,846	1,711,516	1,838,141	1,838,141																
2016	825,404	691,547	818,967	958,451	1,037,429	1,050,982	1,083,599																	
2017	276,255	771,193	1,013,157	1,263,398	1,236,321	1,250,328																		
2018	198,003	624,000	730,228	770,772	790,771																			
2019	1,067,059	1,517,150	1,445,774	1,415,866																				
2020	270,001	316,500	451,429																					
2021	304,601	155,916																						
2022	88,000																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	2,528,540	2,292,566	2,410,553	2,664	905
2009	943,108	1,025,753	984,431	2,662	370
2010	223,439	245,094	234,267	2,622	89
2011	2,030,174	2,231,612	2,130,893	2,623	812
2012	1,110,462	1,151,209	1,130,836	2,617	432
2013	1,439,871	1,159,779	1,299,825	2,603	499
2014	514,407	498,604	506,505	2,573	197
2015	2,867,990	2,293,498	2,293,498	2,530	907
2016	1,666,651	1,451,309	1,451,309	2,509	578
2017	1,920,992	1,806,555	1,806,555	2,489	726
2018	1,064,113	1,204,189	1,204,189	2,487	484
2019	1,975,262	2,390,418	2,390,418	2,413	991
2020	775,364	837,469	837,469	2,408	348
2021	500,773	353,678	353,678	2,405	147
2022	88,000	358,355	358,355	2,371	151
TOTAL	19,649,147	19,300,089	19,392,781	37,976	511

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	905	743	582	1,549,890	17.3%	268,519	2,062,340	2,330,859	2,129,799	201,060	67,459	875
2009	2,662	370	308	574	1,527,044	20.7%	315,725	943,108	1,258,834	943,108	315,725	-	473
2010	2,622	89	75	566	1,483,041	24.6%	364,148	223,439	587,587	223,439	364,148	-	224
2011	2,623	812	696	558	1,462,836	28.2%	412,521	1,456,728	1,869,249	2,017,508	(148,259)	560,780	713
2012	2,617	432	375	550	1,439,057	34.2%	491,660	758,294	1,249,954	1,020,206	229,748	261,912	478
2013	2,603	499	440	542	1,411,320	38.5%	542,692	901,545	1,444,237	998,657	445,580	97,112	555
2014	2,573	197	176	535	1,375,523	42.7%	586,728	301,110	887,838	419,807	468,031	118,697	345
2015	2,530	907	821	527	1,333,600	46.4%	618,810	1,564,169	2,182,979	1,838,141	344,838	273,972	863
2016	2,509	578	532	520	1,304,015	50.8%	663,079	849,586	1,512,665	1,083,599	429,065	234,013	603
2017	2,489	726	676	512	1,275,510	58.7%	748,892	897,982	1,646,875	1,250,328	396,547	352,346	662
2018	2,487	484	458	505	1,256,642	65.3%	820,462	417,839	1,238,300	790,771	447,530	372,932	498
2019	2,413	991	950	498	1,202,182	73.1%	878,854	804,016	1,682,870	1,415,866	267,004	611,850	697
2020	2,408	348	338	491	1,182,895	87.2%	1,032,010	198,330	1,230,340	451,429	778,911	253,099	511
2021	2,405	147	145	484	1,164,881	99.1%	1,154,249	60,751	1,215,000	155,916	1,059,083	95,166	505
2022	2,371	151	151	478	1,132,335	99.1%	1,122,000	-	1,122,000	88,000	1,034,000	88,000	473
TOTAL	37,976				20,100,772		10,020,348	11,439,238	21,459,586	14,826,574	6,633,012	3,387,336	565

Pure Premium Selection

Trend = 0.986

3-Year Average x Latest	478
5-Year Average x Latest	513
All Year Average x Latest	481
Selected Pure Premium	478

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance UST - Other
Incurred Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT IBNR	(8) EXPECTED IBNR	(9) INCURRED LOSSES	(10) INDICATED ULTIMATE	(11) PAID LOSSES	(12) UNPAID LOSS	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	905	743	582	1,549,890	8.1%	124,874	2,129,799	2,254,673	2,062,340	192,333	67,459	846
2009	2,662	370	308	574	1,527,044	8.8%	134,924	943,108	1,078,032	943,108	134,924	-	405
2010	2,622	89	75	566	1,483,041	9.6%	142,285	223,439	365,724	223,439	142,285	-	139
2011	2,623	812	696	558	1,462,836	11.4%	166,465	2,017,508	2,183,973	1,456,728	727,245	560,780	833
2012	2,617	432	375	550	1,439,057	13.9%	199,922	1,020,206	1,220,128	758,294	461,834	261,912	466
2013	2,603	499	440	542	1,411,320	15.8%	223,038	998,657	1,221,695	901,545	320,150	97,112	469
2014	2,573	197	176	535	1,375,523	19.9%	273,100	419,807	692,907	301,110	391,797	118,697	269
2015	2,530	907	821	527	1,333,600	25.3%	337,886	1,838,141	2,176,027	1,564,169	611,858	273,972	860
2016	2,509	578	532	520	1,304,015	30.8%	401,498	1,083,599	1,485,098	849,586	635,512	234,013	592
2017	2,489	726	676	512	1,275,510	34.3%	437,904	1,250,328	1,688,232	897,982	790,250	352,346	678
2018	2,487	484	458	505	1,256,642	40.8%	512,322	790,771	1,303,093	417,839	885,254	372,932	524
2019	2,413	991	950	498	1,202,182	46.1%	554,158	1,415,866	1,970,024	804,016	1,166,008	611,850	816
2020	2,408	348	338	491	1,182,895	55.9%	661,424	451,429	1,112,853	198,330	914,523	253,099	462
2021	2,405	147	145	484	1,164,881	75.4%	878,825	155,916	1,034,742	60,751	973,991	95,166	430
2022	2,371	151	151	478	1,132,335	75.4%	854,272	88,000	942,272	-	942,272	88,000	397
TOTAL	37,976				20,100,772		5,902,898	14,826,574	20,729,472	11,439,238	9,290,235	3,387,336	546

Pure Premium Selection		Trend =	0.986
3-Year Average x Latest	478		
5-Year Average x Latest	513		
All Year Average x Latest	481		
Selected Pure Premium	478		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	68,580,702	63,545,512	68,580,702	5,035,190	-	5,035,190
1997	9,027,463	8,432,328	8,894,995	462,667	132,468	595,135
1998	19,109,962	17,779,349	19,105,032	1,325,683	4,930	1,330,613
1999	8,515,122	7,539,703	8,515,122	975,419	-	975,419
2000	16,504,534	13,940,368	16,504,534	2,564,166	-	2,564,166
2001	3,392,897	2,422,364	3,392,897	970,533	-	970,533
2002	3,349,884	2,951,515	3,239,727	288,212	110,156	398,369
2003	1,238,164	1,068,824	1,138,780	69,956	99,384	169,339
2004	2,248,009	1,666,236	2,248,009	581,773	-	581,773
2005	2,929,459	2,391,427	2,788,380	396,953	141,078	538,032
2006	626,438	410,371	626,438	216,067	-	216,067
2007	1,594,304	1,213,637	1,393,322	179,685	200,983	380,668
2008	705,588	705,588	705,588	-	-	-
2009	996,432	712,041	815,042	103,001	181,391	284,392
2010	823,410	560,509	823,410	262,901	-	262,901
2011	1,771,122	1,040,105	1,771,122	731,017	-	731,017
2012	305,720	305,720	305,720	-	-	-
2013	1,731,613	1,078,285	1,357,285	279,000	374,328	653,328
2014	1,097,762	656,711	773,923	117,212	323,839	441,051
2015	191,429	107,157	107,158	1	84,271	84,272
2016	1,228,160	651,093	1,196,458	545,364	31,702	577,066
2017	1,132,643	554,058	663,561	109,503	469,082	578,585
2018	966,210	435,392	784,953	349,561	181,258	530,819
2019	594,684	230,417	526,812	296,395	67,872	364,267
2020	357,215	51,832	357,215	305,383	-	305,383
2021	66,863	14,326	66,001	51,675	862	52,537
2022	295,469	19,593	76,202	56,609	219,267	275,876
TOTAL	149,495,286	130,598,488	146,872,414	16,273,926	2,622,872	18,896,798

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994																										
1995								9.287	1.127	1.000	1.241	1.000	1.041	1.014	1.069	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	20.724	3.266	2.407	2.036	1.409	1.264	1.161	1.143	1.103	1.082	1.072	1.051	1.076	1.061	1.043	1.032	1.031	1.021	1.035	1.021	1.023	1.023	1.020	1.011	1.008	1.006
1997	16.969	2.041	1.600	1.265	1.152	1.071	1.019	1.041	1.041	1.021	1.095	1.027	1.040	1.046	1.019	1.013	1.006	1.012	1.012	1.008	1.029	1.015	1.014	1.010	1.004	1.000
1998	12.647	2.010	1.342	1.146	1.074	1.053	1.029	1.071	1.035	1.080	1.051	1.056	1.031	1.025	1.017	1.018	1.019	1.010	1.012	1.018	1.031	1.016	1.004	1.006	1.004	1.000
1999	4.821	1.254	1.276	1.187	1.132	1.024	1.044	1.039	1.066	1.103	1.056	1.032	1.019	1.020	1.016	1.012	1.013	1.023	1.018	1.017	1.009	1.005	1.004	1.007	1.004	1.000
2000	2.319	1.409	1.202	1.169	1.115	1.077	1.140	1.034	1.054	1.044	1.028	1.027	1.031	1.030	1.030	1.027	1.025	1.030	1.036	1.028	1.023	1.017	1.009	1.007	1.004	1.000
2001		3.234	1.268	1.346	1.120	1.179	1.166	1.155	1.112	1.047	1.052	1.037	1.017	1.018	1.009	1.043	1.065	1.056	1.023	1.035	1.016	1.016	1.009	1.007	1.004	1.000
2002	10.139	2.111	1.125	1.147	1.072	1.092	1.039	1.043	1.094	1.033	1.046	1.078	1.043	1.070	1.090	1.065	1.041	1.023	1.011	1.002	1.023	1.016	1.009	1.007	1.004	1.000
2003	2.817	1.576	1.195	1.149	1.129	1.151	1.063	1.049	1.089	1.032	1.076	1.029	1.063	1.058	1.049	1.046	1.039	1.032	1.030	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2004	4.773	1.326	1.368	1.217	1.136	1.111	1.059	1.037	1.046	1.032	1.043	1.015	1.037	1.036	1.053	1.030	1.011	1.007	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2005	3.426	1.446	1.590	1.161	1.212	1.132	1.037	1.039	1.095	1.041	1.261	1.036	1.008	1.010	1.007	1.003	1.004	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2006	4.337	3.865	1.419	1.348	1.051	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.218	1.000	1.120	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2007	41.628	3.049	1.218	1.215	1.257	1.101	1.081	1.141	1.098	1.002	1.068	1.033	1.030	1.047	1.011	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2008	4.194	1.048	1.204	1.247	1.256	1.030	1.086	1.045	1.015	1.032	1.084	1.033	1.014	1.010	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2009	3.022	1.570	1.139	1.055	1.015	1.097	1.034	1.018	1.058	1.024	1.022	1.000	1.031	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2010		1.835	1.081	1.363	1.047	1.069	1.179	1.088	1.045	1.028	1.074	1.000	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2011	2.766	1.844	1.117	1.100	1.081	1.076	1.034	1.028	1.041	1.053	1.020	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2012	13.380	1.407	1.134	1.101	1.063	1.086	1.061	1.033	1.028	1.000	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2013	5.111	1.534	1.499	1.181	1.057	1.336	1.065	1.139	1.045	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2014	13.888	1.678	1.154	1.132	1.060	1.043	1.052	1.029	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2015		2.243	1.078	1.144	1.026	1.000	1.000	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2016		1.274	1.172	1.204	1.173	1.122	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2017	2.086	1.438	1.045	1.159	1.075	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2018	3.476	1.240	1.157	1.186	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2019		1.558	1.266	1.163	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2020	4.771	1.258	1.255	1.163	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2021		1.441	1.255	1.163	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000
2022	3.231	1.441	1.255	1.163	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007	1.004	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	40,315	835,499	2,728,718	6,568,905	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526	58,124,590	59,473,654	60,816,782	62,003,446	62,680,269	63,188,205
1997	61,400	1,041,894	2,126,620	3,402,864	4,304,438	4,959,870	5,311,545	5,412,008	5,631,204	5,859,361	5,980,682	6,550,759	6,730,658	7,001,728	7,322,383	7,463,064	7,561,344	7,606,213	7,693,757	7,786,570	7,847,588	8,076,143	8,200,584	8,314,134	8,400,063	8,432,328
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,463	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393	16,312,830	16,500,587	16,792,391	17,314,252	17,590,047	17,668,757	17,779,349	17,850,138
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063	6,982,923	7,144,639	7,276,048	7,401,552	7,470,931	7,507,360	7,539,703	7,591,558	7,621,784
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205	11,922,692	12,218,748	12,583,946	13,033,082	13,401,053	13,707,066	13,940,368	14,068,071	14,164,826	14,221,224
2001	-	147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981	1,922,955	2,005,524	2,135,112	2,253,770	2,305,160	2,384,844	2,422,364	2,461,411	2,483,959	2,501,043	2,511,001
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070	2,358,085	2,569,598	2,737,830	2,849,874	2,914,700	2,946,891	2,951,515	3,018,590	3,067,247	3,095,345	3,116,634	3,129,043
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155	833,873	881,870	925,066	967,687	1,005,806	1,037,603	1,068,824	1,090,921	1,115,713	1,133,697	1,144,083	1,151,951	1,156,538
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142	1,404,444	1,456,535	1,508,295	1,588,561	1,635,498	1,654,081	1,666,236	1,710,910	1,746,281	1,785,966	1,814,755	1,831,379	1,843,975	1,851,316
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966	2,236,223	2,315,908	2,334,050	2,357,368	2,374,726	2,382,660	2,391,427	2,462,776	2,528,806	2,581,087	2,639,743	2,682,294	2,706,866	2,725,482	2,736,334
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938	300,938	300,938	300,938	300,938	366,445	366,445	410,371	423,324	435,954	447,643	456,897	467,280	474,813	479,162	482,458	484,379
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913	1,006,421	1,008,109	1,076,420	1,112,466	1,146,136	1,200,201	1,213,637	1,261,666	1,301,491	1,340,321	1,376,257	1,404,710	1,436,632	1,459,790	1,473,162	1,483,294	1,489,200
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296	587,385	596,073	615,335	666,862	688,613	698,412	705,588	723,961	752,611	776,367	799,530	820,967	837,940	856,982	870,796	878,773	884,817	888,340
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613	612,576	623,399	659,857	675,804	690,692	690,692	712,041	739,268	758,517	788,535	813,425	837,694	860,154	877,937	897,888	912,361	920,719	927,052	930,743
2010	-	125,006	229,422	248,031	338,015	353,987	378,531	446,308	485,492	507,551	521,824	560,509	560,509	573,998	595,946	611,464	635,663	655,727	675,291	693,396	707,732	723,815	735,483	742,220	747,325	750,300
2011	120,046	332,076	612,202	684,075	752,341	813,135	874,773	904,905	930,473	968,523	1,019,798	1,040,105	1,070,198	1,095,953	1,137,860	1,167,488	1,213,691	1,252,001	1,289,355	1,323,924	1,351,295	1,382,004	1,404,281	1,417,145	1,426,891	1,432,573
2012	9,999	133,785	188,289	213,486	235,093	249,801	271,398	287,908	297,472	305,720	305,720	321,139	330,431	338,383	351,322	360,470	374,735	386,564	398,097	408,770	417,221	426,703	433,581	437,553	440,562	442,316
2013	43,387	221,753	340,269	510,062	602,181	636,244	850,328	905,949	1,032,105	1,078,285	1,117,953	1,174,338	1,208,315	1,237,393	1,284,709	1,318,161	1,370,327	1,413,581	1,455,755	1,494,786	1,525,690	1,560,362	1,585,514	1,600,038	1,611,042	1,617,457
2014	18,035	250,466	420,375	484,944	548,829	581,613	606,670	638,491	656,711	683,582	708,730	744,476	766,015	784,450	814,446	835,652	868,723	896,144	922,881	947,625	967,216	989,196	1,005,142	1,014,349	1,021,326	1,025,392
2015	-	37,773	84,716	91,292	104,472	107,157	107,157	107,157	114,518	119,204	123,589	129,823	133,579	136,794	142,024	145,722	151,489	156,271	160,933	165,248	168,665	172,498	175,278	176,884	178,100	178,809
2016	-	275,228	350,684	411,051	494,944	580,460	651,093	687,492	734,718	764,782	792,917	832,908	857,006	877,631	911,190	934,915	971,915	1,002,593	1,032,506	1,060,189	1,082,107	1,106,698	1,124,537	1,134,839	1,142,644	1,147,193
2017	141,856	295,863	425,489	444,673	515,254	554,058	600,457	634,024	677,578	705,303	731,250	768,131	790,355	809,376	840,325	862,205	896,327	924,619	952,206	977,736	997,949	1,020,628	1,037,080	1,046,580	1,053,778	1,057,974
2018	73,595	255,822	317,239	367,138	435,392	472,644	512,224	540,859	578,013	601,665	623,798	655,260	674,219	690,444	716,845	735,511	764,619	788,754	812,286	834,065	851,308	870,655	884,689	892,794	898,934	902,513
2019	-	116,852	182,025	230,417	267,975	290,903	315,264	332,888	355,756	370,313	383,936	403,300	414,969	424,955	441,204	452,693	470,608	485,463	499,946	513,351	523,964	535,871	544,509	549,497	553,276	555,479
2020	8,637	41,206	51,832	65,035	75,635	82,107	88,983	93,957	100,411	104,520	108,365	113,831	117,124	119,943	124,529	127,772	132,828	137,021	141,109	144,892	147,888	151,249	153,687	155,094	156,161	156,783
2021	-	14,326	20,647	25,907	30,130	32,707	35,446	37,428	39,999	41,636	43,167	45,345	46,657	47,779	49,606	50,898	52,912	54,583	56,211	57,718	58,911	60,250	61,221	61,782	62,207	62,455
2022	19,593	63,307	91,242	114,483	133,144	144,535	156,639	165,396	176,757	183,990	190,759	200,380	206,177	211,139	219,213	224,921	233,822	241,202	248,399	255,059	260,332	266,248	270,540	273,018	274,896	275,990

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Selection of Loss Development Factors

	Development Period in Months																						
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																							
1995								9.287	1.127	1.000	1.241	1.000	1.041	1.014	1.069	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	20.724	3.266	2.407	2.036	1.409	1.264	1.161	1.143	1.103	1.082	1.072	1.051	1.076	1.061	1.043	1.032	1.031	1.021	1.035	1.021	1.023	1.023	1.020	1.011
1997	16.969	2.041	1.600	1.265	1.152	1.071	1.019	1.041	1.041	1.021	1.095	1.027	1.040	1.046	1.019	1.013	1.006	1.012	1.012	1.008	1.029	1.015	1.014	1.010
1998	12.647	2.010	1.342	1.146	1.074	1.053	1.029	1.071	1.035	1.080	1.051	1.056	1.031	1.025	1.017	1.018	1.019	1.010	1.012	1.018	1.031	1.016	1.004	1.006
1999	4.821	1.254	1.276	1.187	1.132	1.024	1.044	1.039	1.066	1.103	1.056	1.032	1.019	1.020	1.016	1.012	1.013	1.023	1.018	1.017	1.009	1.005	1.004	
2000	2.319	1.409	1.202	1.169	1.115	1.077	1.140	1.034	1.054	1.044	1.028	1.027	1.031	1.030	1.030	1.027	1.025	1.030	1.036	1.028	1.023	1.017		
2001		3.234	1.268	1.346	1.120	1.179	1.166	1.155	1.112	1.047	1.052	1.037	1.017	1.018	1.009	1.043	1.065	1.056	1.023	1.035	1.016			
2002	10.139	2.111	1.125	1.147	1.072	1.092	1.039	1.043	1.094	1.033	1.046	1.078	1.043	1.070	1.090	1.065	1.041	1.023	1.011	1.002				
2003	2.817	1.576	1.195	1.149	1.129	1.151	1.063	1.049	1.089	1.032	1.076	1.029	1.063	1.058	1.049	1.046	1.039	1.032	1.030					
2004	4.773	1.326	1.368	1.217	1.136	1.111	1.059	1.037	1.046	1.032	1.043	1.015	1.037	1.036	1.053	1.030	1.011	1.007						
2005	3.426	1.446	1.590	1.161	1.212	1.132	1.037	1.039	1.095	1.041	1.261	1.036	1.008	1.010	1.007	1.003	1.004							
2006	4.337	3.865	1.419	1.348	1.051	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.218	1.000	1.120								
2007	41.628	3.049	1.218	1.215	1.257	1.101	1.081	1.141	1.098	1.002	1.068	1.033	1.030	1.047	1.011									
2008	4.194	1.048	1.204	1.247	1.256	1.030	1.086	1.045	1.015	1.032	1.084	1.033	1.014	1.010										
2009	3.022	1.570	1.139	1.055	1.015	1.097	1.034	1.018	1.058	1.024	1.022	1.000	1.031											
2010		1.835	1.081	1.363	1.047	1.069	1.179	1.088	1.045	1.028	1.074	1.000												
2011	2.766	1.844	1.117	1.100	1.081	1.076	1.034	1.028	1.041	1.053	1.020													
2012	13.380	1.407	1.134	1.101	1.063	1.086	1.061	1.033	1.028	1.000														
2013	5.111	1.534	1.499	1.181	1.057	1.336	1.065	1.139	1.045															
2014	13.888	1.678	1.154	1.132	1.060	1.043	1.052	1.029																
2015		2.243	1.078	1.144	1.026	1.000	1.000																	
2016		1.274	1.172	1.204	1.173	1.122																		
2017	2.086	1.438	1.045	1.159	1.075																			
2018	3.476	1.240	1.157	1.186																				
2019		1.558	1.266																					
2020	4.771	1.258																						
2021																								
VOL WTD 3	19.959	1.332	1.127	1.182	1.114	1.075	1.056	1.084	1.041	1.037	1.033	1.011	1.026	1.059	1.008	1.023	1.013	1.020	1.018	1.025	1.018	1.014	1.007	1.010
VOL WTD 5	3.231	1.348	1.136	1.167	1.086	1.154	1.049	1.069	1.045	1.033	1.050	1.018	1.016	1.034	1.024	1.040	1.032	1.030	1.027	1.021	1.024	1.019	1.015	1.010
VOL WTD ALL	4.534	1.738	1.412	1.337	1.195	1.138	1.099	1.090	1.074	1.067	1.065	1.044	1.051	1.046	1.033	1.027	1.025	1.020	1.027	1.020	1.024	1.019	1.015	1.010
ARITH 3	4.771	1.352	1.156	1.183	1.091	1.055	1.039	1.067	1.038	1.027	1.039	1.011	1.025	1.092	1.006	1.051	1.018	1.021	1.021	1.021	1.016	1.013	1.008	1.007
ARITH 5	3.444	1.354	1.144	1.165	1.078	1.118	1.043	1.063	1.043	1.028	1.054	1.013	1.017	1.064	1.024	1.053	1.032	1.029	1.024	1.020	1.019	1.013	1.008	1.007
ARITH ALL	8.865	1.861	1.294	1.229	1.123	1.103	1.068	1.473	1.063	1.036	1.076	1.028	1.032	1.047	1.032	1.034	1.023	1.021	1.020	1.016	1.019	1.013	1.008	1.007
5 YR HI LO	3.476	1.323	1.136	1.163	1.064	1.084	1.049	1.050	1.044	1.028	1.055	1.011	1.017	1.031	1.023	1.047	1.031	1.028	1.024	1.021	1.023	1.016	1.008	NA
7 YR HI LO	3.476	1.441	1.165	1.160	1.067	1.079	1.049	1.044	1.043	1.017	1.054	1.016	1.024	1.044	1.026	1.042	1.026	1.023	1.019	1.018	1.023	1.016	1.009	1.010
ALL YR HI LO	7.421	1.809	1.255	1.198	1.114	1.096	1.065	1.060	1.060	1.037	1.056	1.029	1.030	1.038	1.026	1.032	1.023	1.021	1.022	1.018	1.023	1.016	1.009	1.010
SELECTED	3.231	1.441	1.255	1.163	1.086	1.084	1.056	1.069	1.041	1.037	1.050	1.029	1.024	1.038	1.026	1.040	1.032	1.030	1.027	1.021	1.023	1.016	1.009	1.007

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	40,315	835,499	2,728,718	6,568,905	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526	58,124,590	59,473,654	60,816,782	62,003,446
1997	61,400	1,041,894	2,126,620	3,402,864	4,304,438	4,959,870	5,311,545	5,412,008	5,631,204	5,859,361	5,980,682	6,550,759	6,730,658	7,001,728	7,322,383	7,463,064	7,561,344	7,606,213	7,693,757	7,786,570	7,847,588	8,076,143	8,200,584	8,314,134
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,463	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393	16,312,830	16,500,587	16,792,391	17,314,252	17,590,047	17,668,757
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063	6,982,923	7,144,639	7,276,048	7,401,552	7,470,931	7,507,360	7,539,703
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205	11,922,692	12,218,748	12,583,946	13,033,082	13,401,053	13,707,066	13,940,368	
2001	-	147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981	1,922,955	2,005,524	2,135,112	2,253,770	2,305,160	2,384,844	2,422,364		
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070	2,358,085	2,569,598	2,737,830	2,849,874	2,914,700	2,946,891	2,951,515			
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155	833,873	881,870	925,066	967,687	1,005,806	1,037,603	1,068,824				
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142	1,404,444	1,456,535	1,508,295	1,588,561	1,635,498	1,654,081	1,666,236					
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966	2,236,223	2,315,908	2,334,050	2,357,368	2,374,726	2,382,660	2,391,427						
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938	300,938	300,938	300,938	300,938	366,445	366,445	410,371							
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913	1,006,421	1,008,109	1,076,420	1,112,466	1,146,136	1,200,201	1,213,637								
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296	587,385	596,073	615,335	666,862	688,613	698,412	705,588									
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613	612,576	623,399	659,857	675,804	690,692	690,692	712,041										
2010	-	125,006	229,422	248,031	338,015	353,987	378,531	446,308	485,492	507,551	521,824	560,509	560,509											
2011	120,046	332,076	612,202	684,075	752,341	813,135	874,773	904,905	930,473	968,523	1,019,798	1,040,105												
2012	9,999	133,785	188,289	213,486	235,093	249,801	271,398	287,908	297,472	305,720	305,720													
2013	43,387	221,753	340,269	510,062	602,181	636,244	850,328	905,949	1,032,105	1,078,285														
2014	18,035	250,466	420,375	484,944	548,829	581,613	606,670	638,491	656,711															
2015	-	37,773	84,716	91,292	104,472	107,157	107,157	107,157																
2016	-	275,228	350,684	411,051	494,944	580,460	651,093																	
2017	141,856	295,863	425,489	444,673	515,254	554,058																		
2018	73,595	255,822	317,239	367,138	435,392																			
2019	-	116,852	182,025	230,417																				
2020	8,637	41,206	51,832																					
2021	-	14,326																						
2022	19,593																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	68,580,702	63,545,512	68,580,702	5,035,190	-	5,035,190
1997	8,894,995	8,432,328	8,894,995	462,667	-	462,667
1998	19,105,032	17,779,349	19,105,032	1,325,683	-	1,325,683
1999	8,524,204	7,539,703	8,515,122	975,419	9,082	984,502
2000	16,687,360	13,940,368	16,504,534	2,564,166	182,826	2,746,991
2001	3,424,412	2,422,364	3,392,897	970,533	31,515	1,002,048
2002	3,313,700	2,951,515	3,239,727	288,212	73,972	362,185
2003	1,167,396	1,068,824	1,138,780	69,956	28,616	98,572
2004	2,312,921	1,666,236	2,248,009	581,773	64,912	646,685
2005	2,910,891	2,391,427	2,788,380	396,953	122,511	519,464
2006	667,805	410,371	626,438	216,067	41,367	257,434
2007	1,488,652	1,213,637	1,393,322	179,685	95,331	275,015
2008	760,887	705,588	705,588	-	55,299	55,299
2009	904,935	712,041	815,042	103,001	89,894	192,895
2010	924,608	560,509	823,410	262,901	101,198	364,099
2011	2,012,378	1,040,105	1,771,122	731,017	241,256	972,273
2012	350,040	305,720	305,720	-	44,320	44,320
2013	1,574,724	1,078,285	1,357,285	279,000	217,439	496,439
2014	923,168	656,711	773,923	117,212	149,246	266,457
2015	132,334	107,157	107,158	1	25,176	25,177
2016	1,498,868	651,093	1,196,458	545,364	302,411	847,775
2017	855,689	554,058	663,561	109,503	192,128	301,631
2018	1,042,387	435,392	784,953	349,561	257,434	606,995
2019	728,497	230,417	526,812	296,395	201,685	498,080
2020	546,349	51,832	357,215	305,383	189,134	494,517
2021	107,845	14,326	66,001	51,675	41,844	93,519
2022	146,858	19,593	76,202	56,609	70,656	127,266
TOTAL	149,701,665	130,598,488	146,872,414	16,273,926	2,829,251	19,103,177

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.677	1.000	1.321	1.000	1.000	1.000	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.030	1.013	1.015	1.034	1.021	1.013	1.003	1.004	1.011	1.002	1.002	1.006	1.011
1997	1.396	1.116	1.162	1.127	1.028	1.003	0.954	0.965	1.029	1.098	0.987	1.020	1.012	1.040	1.012	1.002	1.015	1.000	1.012	0.992	1.014	1.012	0.988	1.004	1.008	1.000
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040	1.005	0.996	1.022	1.016	0.999	0.996	0.996	1.000	1.000
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1.000	1.023	0.977	1.010	0.995	1.024	1.007	1.033	1.001	1.000	1.000
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.055	1.053	1.020	0.993	0.996	1.031	1.010	1.012	1.023	1.018	1.007	1.029	1.013	1.069	1.020	0.997	1.010	1.001	1.000	1.000
2001	0.887	1.044	0.845	0.979	0.876	1.081	1.101	1.045	0.957	1.025	1.000	0.983	0.953	1.003	1.019	1.002	1.300	1.041	0.975	0.973	1.003	1.005	1.003	1.001	1.000	1.000
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010	1.074	1.000	0.999	1.001	0.990	0.979	1.000	1.013	1.005	1.003	1.001	1.000	1.000
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999	1.018	0.960	1.011	1.000	0.994	1.018	1.017	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018	0.990	1.034	1.125	1.046	1.000	1.054	1.000	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990	1.012	0.993	1.008	1.016	1.000	1.000	0.987	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2006	0.767	0.851	0.950	1.035	0.886	0.992	1.000	1.000	1.000	1.000	0.889	1.332	1.000	1.173	1.000	1.000	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047	0.964	1.000	1.030	1.026	1.000	1.039	1.003	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999	1.000	0.961	1.000	1.084	1.037	1.000	0.990	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2009	1.125	0.974	0.970	0.998	1.031	1.010	0.995	1.000	0.975	1.000	0.992	0.935	1.135	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2010	0.696	0.950	0.912	1.001	0.981	1.000	0.974	1.023	0.918	1.021	0.991	1.000	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2011	1.126	1.158	0.990	1.312	1.043	1.000	1.005	1.009	1.027	0.964	1.000	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2012	1.075	0.851	1.037	0.721	1.037	0.995	1.000	1.000	0.848	1.000	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2013	0.916	1.273	1.078	1.013	1.113	1.093	0.988	1.084	1.092	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2014	1.190	0.875	1.022	0.977	1.008	0.995	1.000	1.055	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2015	1.537	0.675	0.868	0.864	0.557	1.000	1.000	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2016	2.647	1.049	1.127	1.090	1.008	1.113	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2017	1.426	0.814	1.167	1.000	1.054	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2018	0.948	1.088	0.984	1.328	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2019	1.509	1.000	1.198	1.041	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2020	1.001	1.000	1.106	1.041	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2021	1.000	1.068	1.106	1.041	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000
2022	1.179	1.068	1.106	1.041	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	91,936	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	53,531,128	48,276,729	49,847,529	49,418,092	52,753,132	55,738,399	57,091,010	58,374,714	57,572,079	56,151,498	56,390,044	56,178,170	57,273,590	58,214,909	59,977,749	60,770,991	61,688,932	63,792,669	65,150,172	65,977,888	66,150,236	66,410,153	67,147,100	67,248,518	67,388,931	67,820,317
1997	3,623,255	5,056,762	5,645,295	6,559,604	7,389,942	7,593,854	7,617,322	7,270,502	7,018,575	7,225,243	7,931,591	7,826,924	7,979,609	8,072,414	8,391,881	8,488,892	8,504,323	8,633,879	8,636,397	8,738,364	8,670,098	8,791,796	8,900,508	8,793,515	8,827,197	8,894,995
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400	18,647,583	18,568,571	18,971,581	19,269,629	19,245,674	19,177,563	19,105,032	19,105,032
1999	5,779,939	8,024,567	8,241,908	7,737,025	8,143,656	7,865,685	7,192,693	7,094,803	7,246,092	7,355,844	7,589,351	7,674,874	8,045,877	8,059,650	8,032,191	7,960,410	7,958,498	8,144,205	7,960,287	8,039,540	7,997,090	8,192,089	8,245,749	8,515,122	8,524,204	8,524,204
2000	9,506,730	10,878,161	12,327,020	12,796,309	11,952,953	11,069,344	11,764,305	12,407,735	13,064,765	13,323,241	13,236,077	13,183,944	13,594,880	13,725,657	13,890,845	14,208,532	14,461,978	14,567,342	14,987,967	15,179,509	16,234,214	16,558,944	16,504,534	16,669,580	16,687,360	16,687,360
2001	3,352,183	2,974,870	3,105,598	2,624,610	2,569,088	2,249,767	2,432,889	2,678,844	2,799,441	2,679,331	2,745,539	2,744,650	2,698,160	2,571,752	2,580,388	2,629,369	2,635,271	3,425,000	3,565,999	3,477,574	3,383,497	3,392,897	3,411,450	3,420,764	3,424,412	3,424,412
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120	3,344,801	3,344,801	3,340,765	3,344,498	3,309,504	3,239,727	3,283,204	3,301,156	3,310,169	3,313,700	3,313,700	3,313,700
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173	1,141,225	1,095,113	1,107,025	1,107,024	1,100,057	1,120,214	1,138,780	1,141,336	1,156,652	1,162,977	1,166,152	1,167,396	1,167,396
2004	2,301,364	1,823,715	1,760,490	1,786,563	1,884,943	1,873,520	1,854,994	1,780,593	1,820,297	1,801,844	1,739,255	1,770,350	1,752,809	1,811,564	2,037,947	2,132,503	2,132,503	2,248,009	2,248,009	2,256,224	2,261,289	2,291,635	2,304,165	2,310,456	2,312,921	2,312,921
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820	2,777,459	2,757,862	2,778,623	2,824,321	2,824,321	2,824,321	2,788,380	2,829,197	2,839,536	2,845,910	2,884,102	2,899,872	2,907,789	2,910,891	2,910,891
2006	800,018	613,382	522,075	495,902	513,398	454,751	450,940	450,940	450,940	450,940	450,940	400,940	533,939	533,939	626,438	626,438	626,438	639,699	649,063	651,435	652,897	661,659	665,277	667,094	667,805	667,805
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571	1,264,959	1,264,959	1,302,593	1,336,035	1,336,035	1,388,675	1,393,322	1,396,438	1,425,999	1,446,874	1,452,161	1,455,421	1,474,952	1,483,017	1,487,066	1,488,652	1,488,652
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233	660,233	634,174	634,174	687,450	712,613	712,613	705,588	712,162	713,754	728,864	739,533	742,236	743,902	753,885	758,007	760,077	760,887	760,887
2009	722,859	813,160	792,224	768,528	767,285	790,728	798,504	794,123	794,123	774,343	774,343	767,806	717,805	815,042	839,167	846,985	848,879	866,849	879,538	882,753	884,734	896,607	901,510	903,971	904,935	904,935
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689	889,689	866,612	886,809	814,151	831,186	823,410	823,410	832,760	857,410	865,398	867,334	885,694	898,659	901,943	903,968	916,099	921,108	923,623	924,608	924,608
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617	1,763,581	1,763,581	1,773,194	1,789,194	1,836,973	1,771,122	1,771,122	1,792,123	1,812,474	1,866,124	1,883,509	1,887,722	1,927,683	1,955,901	1,963,049	1,967,455	1,993,858	2,004,760	2,010,234	2,012,378	2,012,378
2012	510,805	549,280	467,534	484,868	349,610	362,382	360,480	360,480	360,480	305,720	305,720	308,075	311,728	315,268	324,600	327,624	328,357	335,308	340,216	341,459	342,226	346,818	348,715	349,667	350,040	350,040
2013	749,010	686,060	873,521	942,049	954,324	1,061,991	1,160,751	1,147,103	1,242,963	1,357,285	1,375,343	1,385,937	1,402,371	1,418,296	1,460,278	1,473,882	1,477,178	1,508,449	1,530,530	1,536,123	1,539,571	1,560,232	1,568,763	1,573,046	1,574,724	1,574,724
2014	704,012	837,531	732,853	748,791	731,229	737,336	733,721	733,721	773,923	795,697	806,282	812,493	822,128	831,463	856,075	864,050	865,983	884,315	897,260	900,539	902,560	914,672	919,674	922,185	923,168	923,168
2015	247,006	379,643	256,400	222,633	192,349	107,159	107,159	107,158	110,940	114,061	115,579	116,469	117,850	119,188	122,716	123,859	124,136	126,764	128,620	129,090	129,380	131,116	131,833	132,193	132,334	132,334
2016	313,008	828,611	868,811	978,809	1,066,742	1,075,089	1,196,458	1,213,718	1,256,551	1,291,903	1,309,091	1,319,175	1,334,817	1,349,975	1,389,935	1,402,883	1,406,021	1,435,785	1,456,803	1,462,127	1,465,409	1,485,074	1,493,194	1,497,271	1,498,868	1,498,868
2017	465,001	662,914	539,396	629,732	629,732	663,561	683,046	692,899	717,353	737,535	747,347	753,104	762,034	770,687	793,500	800,892	802,684	819,676	831,674	834,714	836,587	847,814	852,450	854,777	855,689	855,689
2018	582,223	551,894	600,621	590,864	784,953	808,340	832,076	844,079	873,868	898,454	910,407	917,419	928,298	938,839	966,629	975,635	977,817	998,516	1,013,133	1,016,835	1,019,118	1,032,794	1,038,441	1,041,277	1,042,387	1,042,387
2019	291,502	439,872	439,872	526,812	548,583	564,927	581,516	589,905	610,723	627,905	636,259	641,160	648,763	656,130	675,551	681,845	683,370	697,836	708,052	710,639	712,234	721,792	725,739	727,720	728,497	728,497
2020	357,003	357,216	357,215	395,092	411,419	423,677	436,118	442,409	458,022	470,909	477,174	480,849	486,551	492,076	506,642	511,362	512,506	523,355	531,016	532,956	534,153	541,321	544,281	545,767	546,349	546,349
2021	66,002	66,001	70,511	77,988	81,211	83,630	86,086	87,328	90,410	92,953	94,190	94,915	96,041	97,132	100,007	100,938	101,164	103,306	104,818	105,201	105,437	106,852	107,436	107,730	107,845	107,845
2022	76,202	89,878	96,019	106,200	110,589	113,884	117,228	118,919	123,116	126,580	128,264	129,252	130,785	132,270	136,185	137,454	137,761	140,678	142,737	143,258	143,580	145,507	146,302	146,702	146,858	146,858

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																								
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.677	1.000	1.321	1.000	1.000	1.000	1.000	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.030	1.013	1.015	1.034	1.021	1.013	1.003	1.004	1.011	1.002	1.002
1997	1.396	1.116	1.162	1.127	1.028	1.003	0.954	0.965	1.029	1.098	0.987	1.020	1.012	1.040	1.012	1.002	1.015	1.000	1.012	0.992	1.014	1.012	0.988	1.004
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040	1.005	0.996	1.022	1.016	0.999	0.996	0.996
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1.000	1.023	0.977	1.010	0.995	1.024	1.007	1.033	
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.055	1.053	1.020	0.993	0.996	1.031	1.010	1.012	1.023	1.018	1.007	1.029	1.013	1.069	1.020	0.997		
2001	0.887	1.044	0.845	0.979	0.876	1.081	1.101	1.045	0.957	1.025	1.000	0.983	0.953	1.003	1.019	1.002	1.300	1.041	0.975	0.973	1.003			
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010	1.074	1.000	0.999	1.001	0.990	0.979	1.000				
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999	1.018	0.960	1.011	1.000	0.994	1.018	1.017					
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018	0.990	1.034	1.125	1.046	1.000	1.054	1.000						
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990	1.012	0.993	1.008	1.016	1.000	1.000	0.987							
2006	0.767	0.851	0.950	1.035	0.886	0.992	1.000	1.000	1.000	1.000	0.889	1.332	1.000	1.173	1.000	1.000								
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047	0.964	1.000	1.030	1.026	1.000	1.039	1.003									
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999	1.000	0.961	1.000	1.084	1.037	1.000	0.990										
2009	1.125	0.974	0.970	0.998	1.031	1.010	0.995	1.000	0.975	1.000	0.992	0.935	1.135											
2010	0.696	0.950	0.912	1.001	0.981	1.000	0.974	1.023	0.918	1.021	0.991	1.000												
2011	1.126	1.158	0.990	1.312	1.043	1.000	1.005	1.009	1.027	0.964	1.000													
2012	1.075	0.851	1.037	0.721	1.037	0.995	1.000	1.000	0.848	1.000														
2013	0.916	1.273	1.078	1.013	1.113	1.093	0.988	1.084	1.092															
2014	1.190	0.875	1.022	0.977	1.008	0.995	1.000	1.055																
2015	1.537	0.675	0.868	0.864	0.557	1.000	1.000																	
2016	2.647	1.049	1.127	1.090	1.008	1.113																		
2017	1.426	0.814	1.167	1.000	1.054																			
2018	0.948	1.088	0.984	1.328																				
2019	1.509	1.000	1.198																					
2020	1.001	1.000																						
2021	1.000																							
VOL WTD 3	1.208	1.036	1.106	1.128	0.977	1.061	0.993	1.061	1.032	0.983	0.996	0.989	1.035	1.053	1.001	1.000	1.012	0.998	0.983	1.044	1.019	0.999	1.003	1.001
VOL WTD 5	1.179	0.988	1.090	1.074	1.020	1.064	0.999	1.035	1.003	0.989	1.015	1.036	1.019	1.057	1.014	1.000	1.072	1.022	1.004	1.027	1.017	1.007	1.002	1.001
VOL WTD ALL	1.004	1.068	1.009	1.041	1.023	1.010	1.014	1.009	0.997	1.013	1.005	1.021	1.015	1.030	1.012	1.010	1.034	1.015	1.008	1.012	1.010	1.007	1.002	1.001
ARITH 3	1.170	1.029	1.116	1.139	0.873	1.036	0.996	1.046	0.989	0.995	0.994	0.990	1.045	1.068	1.001	1.000	1.012	1.003	0.990	1.014	1.016	1.001	1.006	1.001
ARITH 5	1.177	0.990	1.069	1.052	0.948	1.039	0.999	1.034	0.972	0.997	1.019	1.066	1.029	1.069	1.012	1.000	1.067	1.016	0.999	1.012	1.012	1.004	1.004	1.001
ARITH ALL	1.115	1.010	1.008	1.026	0.988	1.014	1.003	1.155	1.002	1.029	1.005	1.026	1.015	1.036	1.005	1.003	1.041	1.008	1.002	1.007	1.012	1.004	1.004	1.001
5 YR HI LO	1.142	1.016	1.093	1.022	1.023	1.029	1.000	1.029	0.973	1.000	1.007	1.021	1.003	1.060	1.005	1.000	1.016	1.016	1.001	1.005	1.017	1.005	0.999	NA
7 YR HI LO	1.294	0.947	1.076	0.989	1.030	1.018	0.997	1.017	0.969	1.000	1.005	1.009	1.012	1.049	1.007	1.000	1.016	1.008	1.002	1.002	1.013	1.005	0.999	1.002
ALL YR HI LO	1.073	1.008	1.008	1.028	1.003	1.017	1.001	1.022	1.000	1.010	1.008	1.012	1.011	1.033	1.009	1.002	1.021	1.009	1.004	1.002	1.013	1.005	0.999	1.002
SELECTED	1.179	1.068	1.106	1.041	1.030	1.029	1.014	1.035	1.028	1.013	1.008	1.012	1.011	1.030	1.009	1.002	1.021	1.015	1.004	1.002	1.013	1.005	1.003	1.001

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Incurred Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	91,936	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	53,531,128	48,276,729	49,847,529	49,418,092	52,753,132	55,738,399	57,091,010	58,374,714	57,572,079	56,151,498	56,390,044	56,178,170	57,273,590	58,214,909	59,977,749	60,770,991	61,688,932	63,792,669	65,150,172	65,977,888	66,150,236	66,410,153	67,147,100	67,248,518
1997	3,623,255	5,056,762	5,645,295	6,559,604	7,389,942	7,593,854	7,617,322	7,270,502	7,018,575	7,225,243	7,931,591	7,826,924	7,979,609	8,072,414	8,391,881	8,488,892	8,504,323	8,633,879	8,636,397	8,738,364	8,670,098	8,791,796	8,900,508	8,793,515
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400	18,647,583	18,568,571	18,971,581	19,269,629	19,245,674	19,177,563
1999	5,779,939	8,024,567	8,241,908	7,737,025	8,143,656	7,865,685	7,192,693	7,094,803	7,246,092	7,355,844	7,589,351	7,674,874	8,045,877	8,059,650	8,032,191	7,960,410	7,958,498	8,144,205	7,960,287	8,039,540	7,997,090	8,192,089	8,245,749	8,515,122
2000	9,506,730	10,878,161	12,327,020	12,796,309	11,952,953	11,069,344	11,764,305	12,407,735	13,064,765	13,323,241	13,236,077	13,183,944	13,594,880	13,725,657	13,890,845	14,208,532	14,461,978	14,567,342	14,987,967	15,179,509	16,234,214	16,558,944	16,504,534	
2001	3,352,183	2,974,870	3,105,598	2,624,610	2,569,088	2,249,767	2,432,889	2,678,844	2,799,441	2,679,331	2,745,539	2,744,650	2,698,160	2,571,752	2,580,388	2,629,369	2,635,271	3,425,000	3,565,999	3,477,574	3,383,497	3,392,897		
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120	3,344,801	3,344,801	3,340,765	3,344,498	3,309,504	3,239,727	3,239,727			
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173	1,141,225	1,095,113	1,107,025	1,107,024	1,100,057	1,120,214	1,138,780				
2004	2,301,364	1,823,715	1,760,490	1,786,563	1,884,943	1,873,520	1,854,994	1,780,593	1,820,297	1,801,844	1,739,255	1,770,350	1,752,809	1,811,564	2,037,947	2,132,503	2,132,503	2,248,009	2,248,009					
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820	2,777,459	2,757,862	2,778,623	2,824,321	2,824,321	2,824,321	2,788,380						
2006	800,018	613,382	522,075	495,902	513,398	454,751	450,940	450,940	450,940	450,940	450,940	400,940	533,939	533,939	626,438	626,438	626,438							
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571	1,264,959	1,264,959	1,302,593	1,336,035	1,336,035	1,388,675	1,393,322								
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233	660,233	634,174	634,174	687,450	712,613	712,613	705,588									
2009	722,859	813,160	792,224	768,528	767,285	790,728	798,504	794,123	794,123	774,343	774,343	767,806	717,805	815,042										
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689	889,689	866,612	886,809	814,151	831,186	823,410	823,410											
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617	1,763,581	1,763,581	1,773,194	1,789,194	1,836,973	1,771,122	1,771,122												
2012	510,805	549,280	467,534	484,868	349,610	362,382	360,480	360,480	360,480	305,720	305,720													
2013	749,010	686,060	873,521	942,049	954,324	1,061,991	1,160,751	1,147,103	1,242,963	1,357,285														
2014	704,012	837,531	732,853	748,791	731,229	737,336	733,721	733,721	773,923															
2015	247,006	379,643	256,400	222,633	192,349	107,159	107,159	107,158																
2016	313,008	828,611	868,811	978,809	1,066,742	1,075,089	1,196,458																	
2017	465,001	662,914	539,396	629,732	629,732	663,561																		
2018	582,223	551,894	600,621	590,864	784,953																			
2019	291,502	439,872	439,872	526,812																				
2020	357,003	357,216	357,215																					
2021	66,002	66,001																						
2022	76,202																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial UST
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POTENTIAL SITES	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	705,588	760,887	733,238	12,021	61
2009	996,432	904,935	950,684	12,003	79
2010	823,410	924,608	874,009	11,973	73
2011	1,771,122	2,012,378	1,891,750	11,936	158
2012	305,720	350,040	327,880	11,915	28
2013	1,731,613	1,574,724	1,653,169	11,887	139
2014	1,097,762	923,168	1,010,465	11,853	85
2015	191,429	132,334	161,882	11,834	14
2016	1,228,160	1,498,868	1,363,514	11,810	115
2017	1,132,643	855,689	994,166	11,790	84
2018	966,210	1,042,387	1,004,299	11,776	85
2019	594,684	728,497	661,590	11,759	56
2020	357,215	546,349	451,782	11,745	38
2021	66,863	107,845	87,354	11,735	7
2022	295,469	146,858	221,164	11,729	19
TOTAL	12,264,321	12,509,568	12,386,945	177,766	70

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POTENTIAL SITES	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	12,021	61	10	201	2,410,471	25.8%	622,107	705,588	1,327,696	705,588	622,107	-	110
2009	12,003	79	15	177	2,121,495	28.5%	605,496	712,041	1,317,537	815,042	502,495	103,001	110
2010	11,973	73	16	156	1,865,290	30.2%	563,696	560,509	1,124,205	823,410	300,795	262,901	94
2011	11,936	158	40	137	1,639,054	32.2%	527,487	1,040,105	1,567,592	1,771,122	(203,530)	731,017	131
2012	11,915	28	8	121	1,442,180	35.4%	511,089	305,720	816,809	305,720	511,089	-	69
2013	11,887	139	45	107	1,268,203	37.7%	478,486	1,078,285	1,556,771	1,357,285	199,486	279,000	131
2014	11,853	85	31	94	1,114,643	40.2%	447,834	656,711	1,104,544	773,923	330,622	117,212	93
2015	11,834	14	6	83	980,912	44.0%	431,823	107,157	538,980	107,158	431,822	1	46
2016	11,810	115	54	73	862,858	47.0%	405,425	651,093	1,056,518	1,196,458	(139,939)	545,364	89
2017	11,790	84	45	64	759,267	51.1%	387,854	554,058	941,913	663,561	278,351	109,503	80
2018	11,776	85	51	57	668,451	54.9%	367,235	435,392	802,627	784,953	17,674	349,561	68
2019	11,759	56	39	50	588,346	61.3%	360,385	230,417	590,802	526,812	63,990	296,395	50
2020	11,745	38	30	44	517,973	69.1%	358,021	51,832	409,853	357,215	52,638	305,383	35
2021	11,735	7	7	39	456,171	78.6%	358,432	14,326	372,758	66,001	306,757	51,675	32
2022	11,729	19	19	34	401,880	93.4%	375,232	19,593	394,824	76,202	318,622	56,609	34
TOTAL	177,766				17,097,195		6,800,603	7,122,827	13,923,430	10,330,449	3,592,981	3,207,622	78

Pure Premium Selection		Trend =	0.881
3-Year Average x Latest	25		
5-Year Average x Latest	34		
All Year Average x Latest	28		
Selected Pure Premium	34		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1) RY	(2) POTENTIAL SITES	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT IBNR	(8) EXPECTED IBNR	(9) INCURRED LOSSES	(10) INDICATED ULTIMATE	(11) PAID LOSSES	(12) UNPAID LOSS	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	12,021	61	10	201	2,410,471	9.9%	239,449	705,588	945,037	705,588	239,449	-	79
2009	12,003	79	15	177	2,121,495	10.9%	232,197	815,042	1,047,239	712,041	335,198	103,001	87
2010	11,973	73	16	156	1,865,290	12.0%	223,622	823,410	1,047,032	560,509	486,523	262,901	87
2011	11,936	158	40	137	1,639,054	12.7%	207,527	1,771,122	1,978,648	1,040,105	938,543	731,017	166
2012	11,915	28	8	121	1,442,180	13.8%	199,137	305,720	504,857	305,720	199,137	-	42
2013	11,887	139	45	107	1,268,203	16.2%	205,026	1,357,285	1,562,312	1,078,285	484,026	279,000	131
2014	11,853	85	31	94	1,114,643	19.0%	212,054	773,923	985,977	656,711	329,266	117,212	83
2015	11,834	14	6	83	980,912	20.2%	197,908	107,158	305,066	107,157	197,909	1	26
2016	11,810	115	54	73	862,858	22.5%	193,738	1,196,458	1,390,195	651,093	739,102	545,364	118
2017	11,790	84	45	64	759,267	24.7%	187,513	663,561	851,074	554,058	297,016	109,503	72
2018	11,776	85	51	57	668,451	27.7%	185,061	784,953	970,014	435,392	534,622	349,561	82
2019	11,759	56	39	50	588,346	34.6%	203,672	526,812	730,484	230,417	500,067	296,395	62
2020	11,745	38	30	44	517,973	38.8%	200,973	357,215	558,188	51,832	506,356	305,383	48
2021	11,735	7	7	39	456,171	48.1%	219,473	66,001	285,474	14,326	271,148	51,675	24
2022	11,729	19	19	34	401,880	48.1%	193,352	76,202	269,554	19,593	249,962	56,609	23
TOTAL	177,766				17,097,195		3,100,704	10,330,449	13,431,152	7,122,827	6,308,326	3,207,622	76

Pure Premium Selection	
3-Year Average x Latest	25
5-Year Average x Latest	34
All Year Average x Latest	28
Selected Pure Premium	34

Trend = 0.881

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,116,687	6,690,965	574,278	-	574,278
2002	2,309,328	1,909,066	2,309,328	400,262	-	400,262
2003	1,518,518	1,412,642	1,466,741	54,099	51,777	105,876
2004	3,006,603	2,780,056	2,953,221	173,165	53,381	226,546
2005	2,117,185	1,691,931	2,117,185	425,254	-	425,254
2006	2,203,318	1,977,382	2,203,318	225,937	-	225,937
2007	1,173,608	1,173,608	1,173,608	-	-	-
2008	581,362	581,362	581,362	-	-	-
2009	1,066,343	904,524	981,649	77,124	84,694	161,819
2010	1,434,006	891,779	1,434,006	542,227	-	542,227
2011	1,160,566	919,162	1,124,801	205,639	35,765	241,404
2012	3,110,464	2,380,133	2,536,632	156,499	573,832	730,331
2013	1,421,442	1,036,131	1,290,963	254,832	130,479	385,311
2014	848,925	147,359	848,925	701,566	-	701,566
2015	1,782,587	1,150,455	1,673,552	523,096	109,036	632,132
2016	2,142,238	1,228,997	1,810,869	581,872	331,369	913,241
2017	4,445,724	2,264,234	4,445,724	2,181,490	-	2,181,490
2018	2,916,597	1,370,309	2,802,029	1,431,720	114,568	1,546,288
2019	6,467,935	2,507,017	4,565,470	2,058,453	1,902,465	3,960,918
2020	2,014,164	608,554	1,613,963	1,005,409	400,201	1,405,610
2021	4,116,593	805,000	2,780,016	1,975,016	1,336,577	3,311,592
2022	2,867,031	128,434	1,354,054	1,225,620	1,512,977	2,738,597
TOTAL	59,758,566	38,191,488	53,121,447	14,929,959	6,637,119	21,567,078

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994																										
1995																										
1996																										
1997																										1.000
1998		1.000	1.000	1.000	1.000	1.000	1.000	1.000	4.669	2.231	2.058	1.148	1.066	1.091	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	15.900	1.244	2.319	1.021	1.004	1.011	1.041	1.014	1.085	1.078	1.058	1.037	1.005	1.016	1.000	1.124	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.761	1.262	1.034	1.014	1.018	1.108	1.028	1.038	1.083	1.014	1.013	1.025	1.001	1.010	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.541	1.087	1.075	1.093	1.050	1.021	1.028	1.099	1.106	1.029	1.266	1.019	1.043	1.029	1.094	1.027	1.021	1.029	1.018	1.002	1.012	1.000	1.000	1.000	1.000	1.000
2002	10.706	2.111	1.228	1.161	1.078	1.049	1.133	1.134	1.168	1.037	1.019	1.010	1.052	1.053	1.024	1.009	1.061	1.009	1.027	1.025	1.007	1.000	1.000	1.000	1.000	1.000
2003	3.306	1.453	1.561	1.192	1.187	1.137	1.043	1.129	1.051	1.067	1.192	1.050	1.041	1.048	1.064	1.064	1.030	1.010	1.000	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2004	3.116	1.474	1.254	1.298	1.343	1.122	1.032	1.102	1.122	1.044	1.055	1.050	1.020	1.011	1.008	1.012	1.024	1.006	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2005	11.692	1.138	1.099	1.080	1.052	1.048	1.018	1.026	1.008	1.008	1.017	1.032	1.094	1.026	1.007	1.002	1.011	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2006	4.502	1.556	1.611	1.283	1.183	1.035	1.111	1.026	1.092	1.151	1.063	1.076	1.033	1.035	1.040	1.013	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2007	3.306	1.594	1.127	1.341	1.099	1.033	1.053	1.050	1.036	1.016	1.021	1.020	1.000	1.000	1.000	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2008	2.474	1.276	1.351	1.168	1.027	1.067	1.100	1.125	1.050	1.023	1.021	1.008	1.015	1.004	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2009	10.467	1.861	1.934	1.065	1.456	1.254	1.238	1.223	1.089	1.081	1.048	1.043	1.009	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2010	4.034	1.182	1.691	1.078	1.324	1.134	1.340	1.062	1.386	1.075	1.132	1.132	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2011	3.325	1.526	1.081	1.124	1.092	1.068	1.074	1.053	1.046	1.001	1.022	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2012	1.608	1.402	1.175	1.175	1.088	1.109	1.113	1.079	1.045	1.024	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2013	3.828	1.585	1.391	1.080	1.118	1.066	1.007	1.023	1.036	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2014	1.000	6.122	3.205	1.209	1.485	1.019	1.292	1.019	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2015	4.922	1.606	1.295	1.461	1.159	1.453	1.301	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2016	3.887	1.284	1.170	1.170	1.171	1.054	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2017	5.527	1.708	1.328	1.185	1.093	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2018	3.795	1.505	1.208	1.292	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2019	2.265	1.347	1.192	1.212	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2020	3.694	1.560	1.283	1.212	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2021	131.102	1.545	1.283	1.212	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000
2022	4.365	1.545	1.283	1.212	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	2,529,597	2,532,094	2,532,094	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	5,488,608	5,638,087	5,757,861	5,925,597	6,033,763	6,045,530	6,116,687	6,116,687	6,116,687	6,116,687	6,116,687
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,223	1,479,159	1,556,347	1,638,304	1,677,022	1,692,921	1,796,372	1,812,290	1,861,975	1,909,066	1,922,964	1,922,964	1,922,964	1,922,964	1,922,964
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	1,145,541	1,200,282	1,276,743	1,358,101	1,398,792	1,412,642	1,412,642	1,421,787	1,432,138	1,432,138	1,432,138	1,432,138	1,432,138
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	2,565,442	2,616,804	2,645,562	2,666,495	2,698,686	2,762,524	2,780,056	2,796,972	2,815,079	2,835,573	2,835,573	2,835,573	2,835,573	2,835,573
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	1,431,885	1,477,651	1,616,331	1,657,857	1,670,265	1,673,598	1,691,931	1,706,092	1,716,473	1,727,585	1,740,162	1,740,162	1,740,162	1,740,162	1,740,162
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	1,534,980	1,631,669	1,755,125	1,812,291	1,876,290	1,951,782	1,977,382	2,011,319	2,028,153	2,040,494	2,053,704	2,068,655	2,068,655	2,068,655	2,068,655	2,068,655
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	1,108,422	1,126,553	1,150,527	1,173,608	1,173,608	1,173,608	1,173,608	1,195,005	1,215,515	1,225,688	1,233,146	1,241,130	1,250,165	1,250,165	1,250,165	1,250,165	1,250,165
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	516,229	541,900	554,141	565,941	570,718	579,066	581,362	592,143	602,939	613,287	618,420	622,183	626,211	630,770	630,770	630,770	630,770	630,770
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	569,158	696,182	758,059	819,677	858,838	896,129	904,524	926,910	944,099	961,311	977,810	985,994	991,994	998,416	1,005,684	1,005,684	1,005,684	1,005,684	1,005,684
2010	25,118	101,329	119,772	202,531	218,274	289,061	327,938	439,479	466,760	646,920	695,674	787,662	891,779	912,784	935,375	952,721	970,090	986,740	994,998	1,001,053	1,007,533	1,014,868	1,014,868	1,014,868	1,014,868	1,014,868
2011	105,665	351,316	535,992	579,582	651,347	711,550	759,749	815,994	858,956	898,414	899,616	919,162	961,794	984,449	1,008,813	1,027,520	1,046,254	1,064,211	1,073,118	1,079,647	1,086,637	1,094,548	1,094,548	1,094,548	1,094,548	1,094,548
2012	492,662	792,235	1,110,684	1,305,178	1,533,202	1,668,186	1,849,816	2,059,499	2,222,469	2,323,261	2,380,133	2,463,471	2,577,729	2,638,448	2,703,747	2,753,885	2,804,093	2,852,220	2,876,092	2,893,592	2,912,325	2,933,527	2,933,527	2,933,527	2,933,527	2,933,527
2013	89,198	341,477	541,380	753,022	813,524	909,739	970,104	977,192	999,814	1,036,131	1,087,690	1,125,774	1,177,989	1,205,736	1,235,577	1,258,490	1,281,434	1,303,427	1,314,337	1,322,334	1,330,895	1,340,584	1,340,584	1,340,584	1,340,584	1,340,584
2014	3,119	3,119	19,091	61,186	74,003	109,866	111,997	144,666	147,359	159,121	167,039	172,888	180,907	185,168	189,751	193,269	196,793	200,171	201,846	203,074	204,389	205,877	205,877	205,877	205,877	205,877
2015	35,104	172,789	277,518	359,484	525,069	608,686	884,338	1,150,455	1,203,328	1,299,381	1,364,039	1,411,799	1,477,280	1,512,078	1,549,500	1,578,234	1,607,008	1,634,589	1,648,270	1,658,299	1,669,035	1,681,186	1,681,186	1,681,186	1,681,186	1,681,186
2016	145,829	566,906	727,719	851,131	995,600	1,165,875	1,228,997	1,382,568	1,446,108	1,561,540	1,639,244	1,696,641	1,775,333	1,817,151	1,862,123	1,896,655	1,931,234	1,964,379	1,980,821	1,992,873	2,005,775	2,020,377	2,020,377	2,020,377	2,020,377	2,020,377
2017	139,537	771,285	1,317,458	1,749,609	2,072,429	2,264,234	2,459,685	2,767,039	2,894,207	3,125,230	3,280,745	3,395,617	3,553,109	3,636,803	3,726,810	3,795,920	3,865,126	3,931,463	3,964,368	3,988,490	4,014,311	4,043,536	4,043,536	4,043,536	4,043,536	4,043,536
2018	153,788	583,697	878,341	1,060,851	1,370,309	1,540,286	1,673,245	1,882,328	1,968,836	2,125,994	2,231,786	2,309,929	2,417,066	2,474,000	2,535,229	2,582,243	2,629,321	2,674,448	2,696,832	2,713,242	2,730,807	2,750,688	2,750,688	2,750,688	2,750,688	2,750,688
2019	689,496	1,561,490	2,102,629	2,507,017	3,038,839	3,415,785	3,710,639	4,174,308	4,366,151	4,714,669	4,949,277	5,122,570	5,360,160	5,486,419	5,622,202	5,726,461	5,830,864	5,930,938	5,980,578	6,016,968	6,055,922	6,100,009	6,100,009	6,100,009	6,100,009	6,100,009
2020	105,627	390,166	608,554	780,704	946,318	1,063,701	1,155,521	1,299,911	1,359,652	1,468,184	1,541,242	1,595,207	1,669,194	1,708,512	1,750,796	1,783,263	1,815,775	1,846,939	1,862,397	1,873,730	1,885,860	1,899,589	1,899,589	1,899,589	1,899,589	1,899,589
2021	6,140	805,000	1,243,777	1,595,620	1,934,105	2,174,016	2,361,680	2,656,787	2,778,888	3,000,706	3,150,025	3,260,319	3,411,537	3,491,895	3,578,316	3,644,673	3,711,121	3,774,815	3,806,409	3,829,570	3,854,362	3,882,422	3,882,422	3,882,422	3,882,422	3,882,422
2022	128,434	560,648	866,238	1,111,281	1,347,021	1,514,110	1,644,809	1,850,339	1,935,377	2,089,864	2,193,858	2,270,673	2,375,990	2,431,956	2,492,145	2,538,359	2,584,638	2,628,997	2,651,001	2,667,132	2,684,399	2,703,941	2,703,941	2,703,941	2,703,941	2,703,941

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																								
1995																								
1996																								
1997																								
1998		1.000	1.000	1.000	1.000	1.000	1.000	1.000	4.669	2.231	2.058	1.148	1.066	1.091	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	15.900	1.244	2.319	1.021	1.004	1.011	1.041	1.014	1.085	1.078	1.058	1.037	1.005	1.016	1.000	1.124	1.000	1.001	1.000	1.000	1.000	1.000	1.000	
2000	1.761	1.262	1.034	1.014	1.018	1.108	1.028	1.038	1.083	1.014	1.013	1.025	1.001	1.010	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
2001	1.541	1.087	1.075	1.093	1.050	1.021	1.028	1.099	1.106	1.029	1.266	1.019	1.043	1.029	1.094	1.027	1.021	1.029	1.018	1.002	1.012			
2002	10.706	2.111	1.228	1.161	1.078	1.049	1.133	1.134	1.168	1.037	1.019	1.010	1.052	1.053	1.024	1.009	1.061	1.009	1.027	1.025				
2003	3.306	1.453	1.561	1.192	1.187	1.137	1.043	1.129	1.051	1.067	1.192	1.050	1.041	1.048	1.064	1.064	1.030	1.010	1.000					
2004	3.116	1.474	1.254	1.298	1.343	1.122	1.032	1.102	1.122	1.044	1.055	1.050	1.020	1.011	1.008	1.012	1.024	1.006						
2005	11.692	1.138	1.099	1.080	1.052	1.048	1.018	1.026	1.008	1.008	1.017	1.032	1.094	1.026	1.007	1.002	1.011							
2006	4.502	1.556	1.611	1.283	1.183	1.035	1.111	1.026	1.092	1.151	1.063	1.076	1.033	1.035	1.040	1.013								
2007	3.306	1.594	1.127	1.341	1.099	1.033	1.053	1.050	1.036	1.016	1.021	1.020	1.000	1.000	1.000									
2008	2.474	1.276	1.351	1.168	1.027	1.067	1.100	1.125	1.050	1.023	1.021	1.008	1.015	1.004										
2009	10.467	1.861	1.934	1.065	1.456	1.254	1.238	1.223	1.089	1.081	1.048	1.043	1.009											
2010	4.034	1.182	1.691	1.078	1.324	1.134	1.340	1.062	1.386	1.075	1.132	1.132												
2011	3.325	1.526	1.081	1.124	1.092	1.068	1.074	1.053	1.046	1.001	1.022													
2012	1.608	1.402	1.175	1.175	1.088	1.109	1.113	1.079	1.045	1.024														
2013	3.828	1.585	1.391	1.080	1.118	1.066	1.007	1.023	1.036															
2014	1.000	6.122	3.205	1.209	1.485	1.019	1.292	1.019																
2015	4.922	1.606	1.295	1.461	1.159	1.453	1.301																	
2016	3.887	1.284	1.170	1.170	1.171	1.054																		
2017	5.527	1.708	1.328	1.185	1.093																			
2018	3.795	1.505	1.208	1.292																				
2019	2.265	1.347	1.192																					
2020	3.694	1.560																						
2021	131.102																							
VOL WTD 3	3.440	1.416	1.237	1.212	1.124	1.181	1.156	1.059	1.043	1.028	1.062	1.066	1.006	1.019	1.019	1.010	1.021	1.008	1.017	1.006	1.007	1.000	1.000	1.000
VOL WTD 5	3.756	1.455	1.231	1.234	1.129	1.131	1.125	1.058	1.080	1.035	1.046	1.059	1.036	1.018	1.022	1.017	1.026	1.017	1.012	1.005	1.007	1.000	1.000	1.000
VOL WTD ALL	2.889	1.370	1.260	1.157	1.110	1.079	1.079	1.073	1.089	1.049	1.103	1.039	1.032	1.026	1.036	1.031	1.020	1.014	1.012	1.005	1.007	1.000	1.000	1.000
ARITH 3	45.687	1.470	1.243	1.215	1.141	1.175	1.200	1.040	1.043	1.034	1.067	1.061	1.008	1.013	1.016	1.009	1.022	1.008	1.015	1.009	1.004	1.000	1.000	1.000
ARITH 5	29.277	1.481	1.239	1.263	1.205	1.140	1.157	1.047	1.120	1.041	1.049	1.056	1.030	1.015	1.024	1.020	1.029	1.011	1.009	1.006	1.003	1.000	1.000	1.000
ARITH ALL	10.337	1.647	1.424	1.166	1.151	1.094	1.109	1.071	1.317	1.125	1.142	1.050	1.032	1.029	1.024	1.028	1.018	1.008	1.008	1.006	1.003	1.000	1.000	1.000
5 YR HI LO	4.339	1.470	1.232	1.229	1.150	1.076	1.160	1.046	1.060	1.041	1.030	1.046	1.019	1.014	1.019	1.012	1.025	1.008	1.006	1.001	1.000	1.000	NA	NA
7 YR HI LO	4.365	1.545	1.283	1.206	1.127	1.086	1.204	1.068	1.053	1.044	1.035	1.044	1.024	1.025	1.029	1.013	1.017	1.005	1.005	1.001	1.000	1.000	NA	NA
ALL YR HI LO	5.031	1.465	1.356	1.159	1.141	1.078	1.101	1.065	1.100	1.050	1.076	1.045	1.028	1.026	1.018	1.018	1.014	1.005	1.005	1.001	1.000	1.000	NA	NA
SELECTED	4.365	1.545	1.283	1.212	1.124	1.086	1.125	1.046	1.080	1.050	1.035	1.046	1.024	1.025	1.019	1.018	1.017	1.008	1.006	1.006	1.007	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	2,529,597	2,532,094	2,532,094	2,532,831	2,532,831	2,532,831	2,532,831
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	5,488,608	5,638,087	5,757,861	5,925,597	6,033,763	6,045,530	6,116,687		
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,223	1,479,159	1,556,347	1,638,304	1,677,022	1,692,921	1,796,372	1,812,290	1,861,975	1,909,066			
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	1,145,541	1,200,282	1,276,743	1,358,101	1,398,792	1,412,642	1,412,642				
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	2,565,442	2,616,804	2,645,562	2,666,495	2,698,686	2,762,524	2,780,056					
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	1,431,885	1,477,651	1,616,331	1,657,857	1,670,265	1,673,598	1,691,931						
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	1,534,980	1,631,669	1,755,125	1,812,291	1,876,290	1,951,782	1,977,382							
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	1,108,422	1,126,553	1,150,527	1,173,608	1,173,608	1,173,608	1,173,608								
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	516,229	541,900	554,141	565,941	570,718	579,066	581,362									
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	569,158	696,182	758,059	819,677	858,838	896,129	904,524										
2010	25,118	101,329	119,772	202,531	218,274	289,061	327,938	439,479	466,760	646,920	695,674	787,662	891,779											
2011	105,665	351,316	535,992	579,582	651,347	711,550	759,749	815,994	858,956	898,414	899,616	919,162												
2012	492,662	792,235	1,110,684	1,305,178	1,533,202	1,668,186	1,849,816	2,059,499	2,222,469	2,323,261	2,380,133													
2013	89,198	341,477	541,380	753,022	813,524	909,739	970,104	977,192	999,814	1,036,131														
2014	3,119	3,119	19,091	61,186	74,003	109,866	111,997	144,666	147,359															
2015	35,104	172,789	277,518	359,484	525,069	608,686	884,338	1,150,455																
2016	145,829	566,906	727,719	851,131	995,600	1,165,875	1,228,997																	
2017	139,537	771,285	1,317,458	1,749,609	2,072,429	2,264,234																		
2018	153,788	583,697	878,341	1,060,851	1,370,309																			
2019	689,496	1,561,490	2,102,629	2,507,017																				
2020	105,627	390,166	608,554																					
2021	6,140	805,000																						
2022	128,434																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,116,687	6,690,965	574,278	-	574,278
2002	2,309,328	1,909,066	2,309,328	400,262	-	400,262
2003	1,466,741	1,412,642	1,466,741	54,099	-	54,099
2004	2,953,221	2,780,056	2,953,221	173,165	-	173,165
2005	2,117,185	1,691,931	2,117,185	425,254	-	425,254
2006	2,205,484	1,977,382	2,203,318	225,937	2,166	228,102
2007	1,176,424	1,173,608	1,173,608	-	2,815	2,815
2008	584,651	581,362	581,362	-	3,289	3,289
2009	988,339	904,524	981,649	77,124	6,691	83,815
2010	1,451,447	891,779	1,434,006	542,227	17,441	559,669
2011	1,141,604	919,162	1,124,801	205,639	16,803	222,442
2012	2,601,089	2,380,133	2,536,632	156,499	64,457	220,956
2013	1,329,353	1,036,131	1,290,963	254,832	38,390	293,222
2014	904,360	147,359	848,925	701,566	55,435	757,001
2015	1,892,848	1,150,455	1,673,552	523,096	219,297	742,393
2016	2,100,326	1,228,997	1,810,869	581,872	289,457	871,330
2017	5,266,885	2,264,234	4,445,724	2,181,490	821,161	3,002,651
2018	3,427,653	1,370,309	2,802,029	1,431,720	625,624	2,057,344
2019	5,929,686	2,507,017	4,565,470	2,058,453	1,364,216	3,422,669
2020	2,169,310	608,554	1,613,963	1,005,409	555,346	1,560,755
2021	4,148,655	805,000	2,780,016	1,975,016	1,368,639	3,343,655
2022	2,563,918	128,434	1,354,054	1,225,620	1,209,864	2,435,484
TOTAL	59,782,538	38,191,488	53,121,447	14,929,959	6,661,091	21,591,051

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1995																										
1996																										
1997																										1.000
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.000	1.000	0.998	1.001	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.010	1.065	1.015	1.050	1.005	1.014	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910	1.031	0.994	1.073	1.000	0.978	1.000	0.991	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006	0.967	0.960	1.071	0.986	0.997	0.967	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.017	1.163	1.104	1.447	1.013	1.039	1.007	1.279	1.013	0.998	0.994	0.994	0.998	0.988	1.018	1.008	1.016	0.995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	0.988	1.000	1.002	1.000	1.208	1.077	1.004	0.969	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879	1.057	1.033	1.025	1.016	1.019	1.000	0.996	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999	0.954	1.000	1.001	0.983	1.000	1.000	1.000	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000	1.083	0.941	1.000	1.017	1.000	1.000	0.985	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.279	1.001	1.295	1.058	1.133	1.003	1.000	1.184	0.977	1.021	1.000	0.978	1.000	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.567	1.112	1.246	1.147	1.203	1.000	1.032	1.197	1.287	1.000	1.126	1.363	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.092	1.390	0.942	0.989	1.006	1.023	1.038	1.145	1.049	1.000	1.000	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.145	1.406	0.953	1.053	1.078	1.053	1.058	0.995	0.995	0.983	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.186	1.007	1.090	1.038	0.971	1.031	1.000	1.102	1.005	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	5.046	0.919	1.039	1.000	0.981	1.000	1.000	1.023	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.533	0.993	1.033	1.548	0.987	1.118	1.153	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.667	1.154	1.165	0.995	1.110	1.000	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	2.350	1.027	1.187	1.010	1.201	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	1.078	1.126	1.096	1.207	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.322	1.111	1.074	1.062	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.194	1.267	1.035	1.062	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	1.291	1.110	1.035	1.062	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.269	1.110	1.035	1.062	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,318,643	6,632,090	6,664,686	6,756,186	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	2,381,937	2,167,740	2,234,838	2,221,133	2,382,845	2,382,845	2,330,982	2,330,982	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,501,010	1,441,010	1,543,256	1,520,985	1,516,742	1,466,741	1,466,741	1,466,741	1,466,741	1,466,741	1,466,741	1,466,741	1,466,741
2004	1,126,417	1,145,722	1,332,467	1,471,542	2,129,824	2,157,171	2,241,962	2,257,589	2,888,114	2,925,815	2,920,815	2,902,227	2,885,920	2,880,127	2,846,805	2,896,847	2,921,054	2,966,831	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,672,486	1,672,486	2,019,809	2,175,022	2,184,707	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	2,018,289	2,085,285	2,138,100	2,172,164	2,212,418	2,212,418	2,203,318	2,205,484	2,205,484	2,205,484	2,205,484	2,205,484	2,205,484	2,205,484	2,205,484	2,205,484
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,192,870	1,192,870	1,194,026	1,173,608	1,173,608	1,173,608	1,173,608	1,175,268	1,176,424	1,176,424	1,176,424	1,176,424	1,176,424	1,176,424	1,176,424	1,176,424	1,176,424
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	616,446	580,293	580,153	590,261	590,261	590,261	581,362	583,252	584,077	584,651	584,651	584,651	584,651	584,651	584,651	584,651	584,651	584,651
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	849,952	1,006,233	982,683	1,003,653	1,003,653	981,649	981,649	982,779	985,974	987,369	988,339	988,339	988,339	988,339	988,339	988,339	988,339	988,339	988,339
2010	542,005	307,495	341,816	426,049	488,528	587,710	587,710	606,228	725,760	933,806	933,806	1,051,870	1,434,006	1,441,621	1,443,281	1,447,974	1,450,022	1,451,447	1,451,447	1,451,447	1,451,447	1,451,447	1,451,447	1,451,447	1,451,447	1,451,447
2011	620,289	677,051	941,165	886,346	876,176	881,631	901,895	935,802	1,071,754	1,124,801	1,124,801	1,124,801	1,127,886	1,133,875	1,135,181	1,138,872	1,140,483	1,141,604	1,141,604	1,141,604	1,141,604	1,141,604	1,141,604	1,141,604	1,141,604	1,141,604
2012	1,343,875	1,538,925	2,163,183	2,062,128	2,171,132	2,339,654	2,464,291	2,607,826	2,593,724	2,580,382	2,536,632	2,562,804	2,569,833	2,583,480	2,586,456	2,594,865	2,598,535	2,601,089	2,601,089	2,601,089	2,601,089	2,601,089	2,601,089	2,601,089	2,601,089	2,601,089
2013	860,008	1,020,291	1,027,875	1,120,854	1,163,773	1,130,369	1,165,331	1,165,331	1,284,396	1,290,963	1,296,410	1,309,786	1,313,379	1,320,353	1,321,874	1,326,172	1,328,047	1,329,353	1,329,353	1,329,353	1,329,353	1,329,353	1,329,353	1,329,353	1,329,353	1,329,353
2014	175,503	885,620	814,206	845,942	845,942	830,162	830,162	830,162	848,925	878,244	881,949	891,049	893,493	898,238	899,272	902,196	903,472	904,360	904,360	904,360	904,360	904,360	904,360	904,360	904,360	904,360
2015	540,144	827,915	821,797	848,986	1,314,585	1,297,946	1,450,916	1,673,552	1,776,821	1,838,186	1,845,942	1,864,988	1,870,103	1,880,034	1,882,200	1,888,319	1,890,990	1,892,848	1,892,848	1,892,848	1,892,848	1,892,848	1,892,848	1,892,848	1,892,848	1,892,848
2016	732,004	1,219,943	1,407,791	1,639,699	1,631,067	1,810,869	1,810,869	1,856,992	1,971,581	2,039,672	2,048,279	2,069,412	2,075,088	2,086,108	2,088,510	2,095,300	2,098,264	2,100,326	2,100,326	2,100,326	2,100,326	2,100,326	2,100,326	2,100,326	2,100,326	2,100,326
2017	1,278,376	3,004,614	3,087,194	3,663,863	3,701,363	4,445,724	4,541,027	4,656,688	4,944,037	5,114,786	5,136,368	5,189,363	5,203,596	5,231,230	5,237,255	5,254,282	5,261,713	5,266,885	5,266,885	5,266,885	5,266,885	5,266,885	5,266,885	5,266,885	5,266,885	5,266,885
2018	1,743,651	1,880,233	2,117,839	2,320,790	2,802,029	2,893,247	2,955,269	3,030,541	3,217,545	3,328,668	3,342,713	3,377,202	3,386,464	3,404,448	3,408,369	3,419,451	3,424,287	3,427,653	3,427,653	3,427,653	3,427,653	3,427,653	3,427,653	3,427,653	3,427,653	3,427,653
2019	2,895,383	3,827,313	4,250,591	4,565,470	4,847,385	5,005,187	5,112,484	5,242,700	5,566,210	5,758,446	5,782,744	5,842,408	5,858,432	5,889,543	5,896,327	5,915,497	5,923,863	5,929,686	5,929,686	5,929,686	5,929,686	5,929,686	5,929,686	5,929,686	5,929,686	5,929,686
2020	1,066,901	1,273,982	1,613,963	1,670,227	1,773,362	1,831,092	1,870,345	1,917,983	2,036,336	2,106,664	2,115,553	2,137,380	2,143,242	2,154,624	2,157,106	2,164,119	2,167,179	2,169,310	2,169,310	2,169,310	2,169,310	2,169,310	2,169,310	2,169,310	2,169,310	2,169,310
2021	2,154,103	2,780,016	3,086,593	3,194,193	3,391,432	3,501,837	3,576,906	3,668,011	3,894,352	4,028,848	4,045,848	4,087,592	4,098,802	4,120,569	4,125,315	4,138,727	4,144,581	4,148,655	4,148,655	4,148,655	4,148,655	4,148,655	4,148,655	4,148,655	4,148,655	4,148,655
2022	1,354,054	1,718,083	1,907,551	1,974,049	2,095,945	2,164,177	2,210,570	2,266,874	2,406,755	2,489,876	2,500,382	2,526,180	2,533,108	2,546,561	2,549,494	2,557,782	2,561,400	2,563,918	2,563,918	2,563,918	2,563,918	2,563,918	2,563,918	2,563,918	2,563,918	2,563,918

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																								
1995																								
1996																								
1997																								
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.000	1.000	0.998	1.001	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.010	1.065	1.015	1.050	1.005	1.014	0.990	1.000	1.000			
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910	1.031	0.994	1.073	1.000	0.978	1.000	0.991				
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006	0.967	0.960	1.071	0.986	0.997	0.967	1.000					
2004	1.017	1.163	1.104	1.447	1.013	1.039	1.007	1.279	1.013	0.998	0.994	0.994	0.998	0.988	1.018	1.008	1.016	0.995						
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	0.988	1.000	1.002	1.000	1.208	1.077	1.004	0.969	1.000	1.000							
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879	1.057	1.033	1.025	1.016	1.019	1.000	0.996								
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999	0.954	1.000	1.001	0.983	1.000	1.000	1.000									
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000	1.083	0.941	1.000	1.017	1.000	1.000	0.985										
2009	1.279	1.001	1.295	1.058	1.133	1.003	1.000	1.184	0.977	1.021	1.000	0.978	1.000											
2010	0.567	1.112	1.246	1.147	1.203	1.000	1.032	1.197	1.287	1.000	1.126	1.363												
2011	1.092	1.390	0.942	0.989	1.006	1.023	1.038	1.145	1.049	1.000	1.000													
2012	1.145	1.406	0.953	1.053	1.078	1.053	1.058	0.995	0.995	0.983														
2013	1.186	1.007	1.090	1.038	0.971	1.031	1.000	1.102	1.005															
2014	5.046	0.919	1.039	1.000	0.981	1.000	1.000	1.023																
2015	1.533	0.993	1.033	1.548	0.987	1.118	1.153																	
2016	1.667	1.154	1.165	0.995	1.110	1.000																		
2017	2.350	1.027	1.187	1.010	1.201																			
2018	1.078	1.126	1.096	1.207																				
2019	1.322	1.111	1.074																					
2020	1.194	1.267																						
2021	1.291																							
VOL WTD 3	1.289	1.143	1.116	1.067	1.137	1.039	1.065	1.027	1.009	0.991	1.039	1.136	1.000	1.008	0.988	1.002	1.006	0.983	0.994	0.998	1.000	1.000	1.000	1.000
VOL WTD 5	1.397	1.113	1.116	1.105	1.099	1.042	1.059	1.062	1.035	0.996	1.027	1.066	1.027	1.001	1.009	1.014	1.005	0.998	0.995	0.998	1.000	1.000	1.000	1.000
VOL WTD ALL	1.295	1.098	1.035	1.057	1.065	1.039	1.025	1.113	1.032	1.019	1.038	1.052	0.996	1.013	1.007	1.028	1.004	0.999	0.996	0.998	1.000	1.000	1.000	1.000
ARITH 3	1.269	1.168	1.119	1.071	1.100	1.039	1.051	1.040	1.016	0.994	1.042	1.114	1.000	1.001	0.990	1.001	1.004	0.980	0.997	0.997	1.000	1.000	1.000	1.000
ARITH 5	1.447	1.137	1.111	1.152	1.050	1.040	1.050	1.092	1.063	1.001	1.029	1.070	1.019	0.999	1.012	1.013	1.004	0.991	0.998	0.998	1.000	1.000	1.000	1.000
ARITH ALL	1.458	1.110	1.060	1.069	1.058	1.033	1.022	1.101	1.271	1.022	1.023	1.060	0.992	0.991	1.007	1.018	1.002	0.993	0.998	0.998	1.000	1.000	1.000	1.000
5 YR HI LO	1.269	1.130	1.112	1.073	1.026	1.028	1.032	1.090	1.016	1.000	1.006	1.003	1.005	0.998	1.006	1.001	1.002	0.991	1.000	1.000	1.000	1.000	NA	NA
7 YR HI LO	1.401	1.082	1.093	1.062	1.033	1.021	1.025	1.107	0.996	1.004	1.010	1.042	1.003	0.999	1.005	1.011	1.001	0.995	1.000	1.000	1.000	1.000	NA	NA
ALL YR HI LO	1.335	1.094	1.064	1.051	1.056	1.030	1.017	1.096	1.028	1.009	1.016	1.040	0.992	0.998	1.003	1.015	1.001	0.995	1.000	1.000	1.000	1.000	NA	NA
SELECTED	1.269	1.110	1.035	1.062	1.033	1.021	1.025	1.062	1.035	1.004	1.010	1.003	1.005	1.001	1.003	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Incurred Losses

	Development in Months																								
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793		
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,318,643	6,632,090	6,664,686	6,756,186	6,690,965	6,690,965	6,690,965			
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	2,381,937	2,167,740	2,234,838	2,221,133	2,382,845	2,382,845	2,330,982	2,330,982	2,309,328				
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,501,010	1,441,010	1,543,256	1,520,985	1,516,742	1,466,741	1,466,741					
2004	1,126,417	1,145,722	1,332,467	1,471,542	2,129,824	2,157,171	2,241,962	2,257,589	2,888,114	2,925,815	2,920,815	2,902,227	2,885,920	2,880,127	2,846,805	2,896,847	2,921,054	2,966,831	2,953,221						
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,672,486	1,672,486	2,019,809	2,175,022	2,184,707	2,117,185	2,117,185	2,117,185							
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	2,018,289	2,085,285	2,138,100	2,172,164	2,212,418	2,212,418	2,203,318								
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,192,870	1,192,870	1,194,026	1,173,608	1,173,608	1,173,608	1,173,608									
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	616,446	580,293	580,153	590,261	590,261	590,261	581,362										
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	849,952	1,006,233	982,683	1,003,653	1,003,653	981,649	981,649											
2010	542,005	307,495	341,816	426,049	488,528	587,710	587,710	606,228	725,760	933,806	933,806	1,051,870	1,434,006												
2011	620,289	677,051	941,165	886,346	876,176	881,631	901,895	935,802	1,071,754	1,124,801	1,124,801	1,124,801													
2012	1,343,875	1,538,925	2,163,183	2,062,128	2,171,132	2,339,654	2,464,291	2,607,826	2,593,724	2,580,382	2,536,632														
2013	860,008	1,020,291	1,027,875	1,120,854	1,163,773	1,130,369	1,165,331	1,165,331	1,284,396	1,290,963															
2014	175,503	885,620	814,206	845,942	845,942	830,162	830,162	830,162	848,925																
2015	540,144	827,915	821,797	848,986	1,314,585	1,297,946	1,450,916	1,673,552																	
2016	732,004	1,219,943	1,407,791	1,639,699	1,631,067	1,810,869	1,810,869																		
2017	1,278,376	3,004,614	3,087,194	3,663,863	3,701,363	4,445,724																			
2018	1,743,651	1,880,233	2,117,839	2,320,790	2,802,029																				
2019	2,895,383	3,827,313	4,250,591	4,565,470																					
2020	1,066,901	1,273,982	1,613,963																						
2021	2,154,103	2,780,016																							
2022	1,354,054																								

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	581,362	584,651	583,007	517	1,128
2009	1,066,343	988,339	1,027,341	563	1,825
2010	1,434,006	1,451,447	1,442,726	578	2,496
2011	1,160,566	1,141,604	1,151,085	810	1,421
2012	3,110,464	2,601,089	2,855,777	975	2,929
2013	1,421,442	1,329,353	1,375,397	1,003	1,371
2014	848,925	904,360	876,642	1,030	851
2015	1,782,587	1,892,848	1,837,718	1,021	1,800
2016	2,142,238	2,100,326	2,121,282	1,010	2,100
2017	4,445,724	5,266,885	4,856,305	1,005	4,832
2018	2,916,597	3,427,653	3,172,125	999	3,175
2019	6,467,935	5,929,686	6,198,810	989	6,268
2020	2,014,164	2,169,310	2,091,737	978	2,139
2021	4,116,593	4,148,655	4,132,624	965	4,283
2022	2,867,031	2,563,918	2,715,475	942	2,883
TOTAL	36,375,976	36,500,125	36,438,050	13,385	2,722

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	517	1,128	2,550	1,695	876,280	10.1%	88,144	581,362	669,506	581,362	88,144	-	1,295
2009	563	1,825	3,892	1,797	1,011,502	12.1%	122,682	904,524	1,027,206	981,649	45,557	77,124	1,825
2010	578	2,496	5,023	1,904	1,100,758	16.0%	176,381	891,779	1,068,159	1,434,006	(365,846)	542,227	1,848
2011	810	1,421	2,698	2,019	1,635,140	18.9%	308,460	919,162	1,227,622	1,124,801	102,821	205,639	1,516
2012	975	2,929	5,245	2,140	2,086,318	22.7%	473,812	2,380,133	2,853,946	2,536,632	317,314	156,499	2,927
2013	1,003	1,371	2,317	2,268	2,275,007	28.4%	646,645	1,036,131	1,682,776	1,290,963	391,813	254,832	1,678
2014	1,030	851	1,357	2,404	2,476,423	31.6%	781,778	147,359	929,136	848,925	80,211	701,566	902
2015	1,021	1,800	2,706	2,549	2,602,071	39.2%	1,019,230	1,150,455	2,169,685	1,673,552	496,133	523,096	2,125
2016	1,010	2,100	2,979	2,701	2,728,480	44.0%	1,200,629	1,228,997	2,429,626	1,810,869	618,757	581,872	2,406
2017	1,005	4,832	6,466	2,864	2,877,871	50.2%	1,444,203	2,264,234	3,708,437	4,445,724	(737,287)	2,181,490	3,690
2018	999	3,175	4,009	3,035	3,032,331	58.9%	1,786,086	1,370,309	3,156,395	2,802,029	354,366	1,431,720	3,160
2019	989	6,268	7,465	3,217	3,182,096	68.0%	2,162,676	2,507,017	4,669,693	4,565,470	104,223	2,058,453	4,722
2020	978	2,139	2,403	3,411	3,335,505	79.3%	2,643,906	608,554	3,252,460	1,613,963	1,638,497	1,005,409	3,326
2021	965	4,283	4,539	3,615	3,488,639	95.3%	3,322,933	805,000	4,127,933	2,780,016	1,347,917	1,975,016	4,278
2022	942	2,883	2,883	3,832	3,609,819	95.3%	3,438,357	128,434	3,566,791	1,354,054	2,212,737	1,225,620	3,786
TOTAL	13,385				36,318,239		19,615,921	16,923,450	36,539,371	29,844,015	6,695,357	12,920,565	2,730

Pure Premium Selection		Trend =	1.060
3-Year Average Ex. Latest	4,803		
5-Year Average Ex. Latest	4,977		
All Year Average Ex. Latest	3,832		
Selected Pure Premium	3,832		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Insurance AST
Incurred Bornhuetter-Ferguson Method

(1) RY	(2) POLICIES IN FORCE	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT IBNR	(8) EXPECTED IBNR	(9) INCURRED LOSSES	(10) INDICATED ULTIMATE	(11) PAID LOSSES	(12) UNPAID LOSS	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	517	1,128	2,550	1,695	876,280	0.7%	5,932	581,362	587,294	581,362	5,932	-	1,136
2009	563	1,825	3,892	1,797	1,011,502	1.2%	12,155	981,649	993,803	904,524	89,279	77,124	1,765
2010	578	2,496	5,023	1,904	1,100,758	1.5%	16,202	1,434,006	1,450,208	891,779	558,429	542,227	2,509
2011	810	1,421	2,698	2,019	1,635,140	2.5%	40,520	1,124,801	1,165,321	919,162	246,159	205,639	1,439
2012	975	2,929	5,245	2,140	2,086,318	2.9%	60,249	2,536,632	2,596,882	2,380,133	216,748	156,499	2,663
2013	1,003	1,371	2,317	2,268	2,275,007	6.1%	139,453	1,290,963	1,430,416	1,036,131	394,285	254,832	1,426
2014	1,030	851	1,357	2,404	2,476,423	11.6%	286,907	848,925	1,135,832	147,359	988,473	701,566	1,103
2015	1,021	1,800	2,706	2,549	2,602,071	13.8%	358,606	1,673,552	2,032,157	1,150,455	881,702	523,096	1,990
2016	1,010	2,100	2,979	2,701	2,728,480	15.6%	425,398	1,810,869	2,236,267	1,228,997	1,007,270	581,872	2,214
2017	1,005	4,832	6,466	2,864	2,877,871	18.3%	525,276	4,445,724	4,971,000	2,264,234	2,706,766	2,181,490	4,946
2018	999	3,175	4,009	3,035	3,032,331	23.0%	697,634	2,802,029	3,499,664	1,370,309	2,129,355	1,431,720	3,503
2019	989	6,268	7,465	3,217	3,182,096	25.6%	814,621	4,565,470	5,380,091	2,507,017	2,873,074	2,058,453	5,440
2020	978	2,139	2,403	3,411	3,335,505	33.0%	1,100,381	1,613,963	2,714,345	608,554	2,105,790	1,005,409	2,775
2021	965	4,283	4,539	3,615	3,488,639	47.2%	1,646,222	2,780,016	4,426,238	805,000	3,621,238	1,975,016	4,587
2022	942	2,883	2,883	3,832	3,609,819	47.2%	1,703,405	1,354,054	3,057,459	128,434	2,929,025	1,225,620	3,246
TOTAL	13,385				36,318,239		7,832,961	29,844,015	37,676,976	16,923,450	20,753,526	12,920,565	2,815

Pure Premium Selection		Trend =	1.060
3-Year Average Ex. Latest	4,803		
5-Year Average Ex. Latest	4,977		
All Year Average Ex. Latest	3,832		
Selected Pure Premium	3,832		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,665,560	1,481,747	1,665,560	183,813	-	183,813
2000	5,640,481	4,577,720	5,640,481	1,062,761	-	1,062,761
2001	2,121,367	1,495,557	2,121,367	625,810	-	625,810
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,151,935	1,937,099	2,074,609	137,511	77,325	214,836
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	51,787	51,787	51,787	-	-	-
2009	183,657	183,657	183,657	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	155,510	155,510	155,510	-	-	-
2016	-	-	-	-	-	-
2017	59,359	59,359	59,359	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	171,362	42,917	121,700	78,783	49,662	128,445
2021	32,000	-	32,000	32,000	-	32,000
2022	-	-	-	-	-	-
TOTAL	14,028,233	11,780,568	13,901,245	2,120,678	126,987	2,247,665

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994																										
1995							2.144	1.250	1.102	1.016	1.278	1.153	1.000	1.048	1.141	1.010	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996										1.967	1.516	1.030	1.000	1.104	1.620	1.057	1.109	1.113	1.009	1.011	1.055	1.000	1.000	1.000	1.000	1.000
1997																										1.000
1998		2.879	1.306	1.090	1.020	1.000	1.056	1.070	1.037	1.019	1.055	1.046	1.006	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.040	1.003	1.000	1.000	1.000
1999	1.701	2.649	1.129	1.235	1.136	1.319	1.105	1.061	1.055	1.049	1.055	1.024	1.016	1.002	1.007	1.007	1.035	1.032	1.041	1.027	1.006	1.000	1.031	1.000	1.000	1.000
2000	1.962	1.171	1.107	1.048	1.046	1.070	1.068	1.150	1.105	1.047	1.036	1.019	1.040	1.028	1.016	1.035	1.216	1.066	1.049	1.028	1.049	1.033	1.001	1.000	1.000	1.000
2001			7.454	2.945	2.045	1.350	1.237	1.305	1.137	1.164	1.109	1.073	1.141	1.052	1.205	1.093	1.118	1.050	1.028	1.039	1.142	1.002	1.001	1.000	1.000	1.000
2002		4.517	2.551	1.068	1.086	1.000	1.038	1.904	1.113	1.019	1.000	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.006	1.002	1.001	1.000	1.000	1.000
2003	1.224	1.255	1.000	1.000	1.000	1.317	1.736	1.067	1.029	1.286	1.111	1.054	1.071	1.053	1.010	1.061	1.044	1.000	1.000	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2004		3.475	1.113	1.759	1.221	1.157	1.322	1.092	1.254	1.712	1.027	1.055	1.028	1.066	1.053	1.028	1.000	1.051	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2005	1.794	1.493	1.622	1.000	1.316	1.173	1.202	1.079	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2006																	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2007		2.517	1.169	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2008		1.226	1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2009			1.105	1.340	1.052	1.375	1.089	1.347	1.098	1.122	1.000	1.000	1.000	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2010													1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2011												1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2012											1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2013										1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2014									1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2015		2.167	1.222	1.092	1.000	1.000	1.000	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2016							1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2017	1.233	1.115	1.000	1.000	1.000	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2018					1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2019				1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2020			1.165	1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2021		1.535	1.165	1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000
2022	1.824	1.535	1.165	1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	19,195	41,156	51,445	56,701	57,626	73,664	84,921	84,921	88,971	101,542	102,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826
1996	-	-	-	-	-	-	-	-	-	14,203	27,940	42,359	43,615	43,615	48,148	77,977	82,406	91,416	101,779	102,681	103,782	109,456	109,456	109,456	109,456	109,456
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	635,092	635,092	635,092	635,092	660,330	662,628	662,628	662,628
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	1,294,320	1,335,943	1,390,883	1,428,204	1,437,060	1,437,060	1,481,747	1,481,747	1,481,747
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	3,022,541	3,675,996	3,920,130	4,111,183	4,225,970	4,432,029	4,577,720	4,582,258	4,582,258	4,582,258
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	955,109	1,043,903	1,166,740	1,225,467	1,260,270	1,309,174	1,495,557	1,499,263	1,500,749	1,500,749	1,500,749
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	240,977	241,574	241,813	241,813	241,813
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	471,503	496,493	501,430	532,032	555,224	555,224	555,224	560,957	564,432	565,831	566,392	566,392	566,392
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	1,554,162	1,598,045	1,703,105	1,792,711	1,843,534	1,843,534	1,937,099	1,970,435	1,990,781	2,003,114	2,008,078	2,010,069	2,010,069	2,010,069
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	81,555	82,959	83,815	84,334	84,543	84,627	84,627	84,627
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	43,153	44,314	45,267	46,046	46,521	46,810	46,926	46,972	46,972	46,972
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	54,020	55,836	57,338	58,571	59,579	60,194	60,567	60,717	60,777	60,777	60,777
2009	-	-	47,443	52,422	70,244	73,919	101,655	110,661	149,107	163,657	183,657	183,657	183,657	183,657	189,722	197,905	204,556	210,057	214,576	218,268	220,522	221,888	222,438	222,659	222,659	222,659
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	53,789	116,564	142,401	155,510	155,510	155,510	155,510	177,363	195,581	225,844	236,904	245,666	254,951	263,371	274,730	283,964	291,600	297,873	302,999	306,128	308,024	308,788	309,094	309,094	309,094
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	43,180	53,255	59,359	59,359	59,359	59,359	67,238	76,291	87,011	95,949	110,795	116,221	120,520	125,075	129,205	134,778	139,308	143,054	146,131	148,646	150,181	151,111	151,486	151,636	151,636	151,636
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	42,917	49,994	57,143	62,659	70,976	80,532	91,848	101,282	116,954	122,682	127,219	132,027	136,387	142,270	147,052	151,006	154,254	156,909	158,529	159,511	159,907	160,065	160,065	160,065
2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																								
1995							2.144	1.250	1.102	1.016	1.278	1.153	1.000	1.048	1.141	1.010	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996										1.967	1.516	1.030	1.000	1.104	1.620	1.057	1.109	1.113	1.009	1.011	1.055	1.000	1.000	1.000
1997																								
1998		2.879	1.306	1.090	1.020	1.000	1.056	1.070	1.037	1.019	1.055	1.046	1.006	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.040	1.003	1.000
1999	1.701	2.649	1.129	1.235	1.136	1.319	1.105	1.061	1.055	1.049	1.055	1.024	1.016	1.002	1.007	1.007	1.035	1.032	1.041	1.027	1.006	1.000	1.031	
2000	1.962	1.171	1.107	1.048	1.046	1.070	1.068	1.150	1.105	1.047	1.036	1.019	1.040	1.028	1.016	1.035	1.216	1.066	1.049	1.028	1.049	1.033		
2001			7.454	2.945	2.045	1.350	1.237	1.305	1.137	1.164	1.109	1.073	1.141	1.052	1.205	1.093	1.118	1.050	1.028	1.039	1.142			
2002		4.517	2.551	1.068	1.086	1.000	1.038	1.904	1.113	1.019	1.000	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				
2003	1.224	1.255	1.000	1.000	1.000	1.317	1.736	1.067	1.029	1.286	1.111	1.054	1.071	1.053	1.010	1.061	1.044	1.000	1.000					
2004		3.475	1.113	1.759	1.221	1.157	1.322	1.092	1.254	1.712	1.027	1.055	1.028	1.066	1.053	1.028	1.000	1.051						
2005	1.794	1.493	1.622	1.000	1.316	1.173	1.202	1.079	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
2006																								
2007		2.517	1.169	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
2008		1.226	1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000										
2009			1.105	1.340	1.052	1.375	1.089	1.347	1.098	1.122	1.000	1.000	1.000											
2010																								
2011																								
2012																								
2013																								
2014																								
2015		2.167	1.222	1.092	1.000	1.000	1.000																	
2016																								
2017	1.233	1.115	1.000	1.000	1.000																			
2018																								
2019																								
2020																								
2021																								
VOL WTD 3	NA	NA	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.027	1.009	1.035	1.017	1.029	1.058	1.026	1.022	1.000
VOL WTD 5	1.233	1.921	1.147	1.065	1.000	1.000	1.000	NA	1.098	1.093	1.000	1.000	1.000	1.059	1.041	1.031	1.039	1.053	1.039	1.026	1.053	1.026	1.020	1.000
VOL WTD ALL	1.824	1.535	1.165	1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.097	1.047	1.035	1.026	1.052	1.025	1.020	1.000
ARITH 3	NA	NA	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.014	1.015	1.017	1.009	1.022	1.066	1.024	1.017	1.000
ARITH 5	1.233	1.115	1.111	1.046	1.000	1.000	1.000	NA	1.098	1.061	1.000	1.000	1.000	1.016	1.016	1.022	1.032	1.033	1.024	1.019	1.042	1.015	1.009	1.000
ARITH ALL	1.583	2.224	1.760	1.275	1.148	1.147	1.231	1.194	1.077	1.185	1.091	1.040	1.023	1.030	1.096	1.029	1.056	1.035	1.016	1.015	1.042	1.015	1.009	1.000
5 YR HI LO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.005	1.014	1.015	1.034	1.023	1.018	1.027	1.016	1.002	NA
7 YR HI LO	NA	NA	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.007	1.013	1.016	1.031	1.039	1.027	1.017	1.016	1.037	1.016	1.003	NA
ALL YR HI LO	1.576	2.092	1.311	1.148	1.080	1.139	1.112	1.130	1.064	1.142	1.039	1.029	1.016	1.023	1.036	1.027	1.044	1.033	1.016	1.016	1.037	1.016	1.003	NA
SELECTED	1.824	1.535	1.165	1.143	1.097	1.133	1.135	1.141	1.103	1.155	1.049	1.037	1.038	1.033	1.043	1.034	1.027	1.022	1.017	1.010	1.006	1.002	1.001	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Paid Losses

	Development in Months																							
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	19,195	41,156	51,445	56,701	57,626	73,664	84,921	84,921	88,971	101,542	102,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826
1996	-	-	-	-	-	-	-	-	-	14,203	27,940	42,359	43,615	43,615	48,148	77,977	82,406	91,416	101,779	102,681	103,782	109,456	109,456	109,456
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	635,092	635,092	635,092	635,092	660,330	662,628
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	1,294,320	1,335,943	1,390,883	1,428,204	1,437,060	1,437,060	1,481,747
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	3,022,541	3,675,996	3,920,130	4,111,183	4,225,970	4,432,029	4,577,720	
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	955,109	1,043,903	1,166,740	1,225,467	1,260,270	1,309,174	1,495,557		
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493			
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	471,503	496,493	501,430	532,032	555,224	555,224	555,224				
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	1,554,162	1,598,045	1,703,105	1,792,711	1,843,534	1,843,534	1,937,099					
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750								
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787									
2009	-	-	47,443	52,422	70,244	73,919	101,655	110,661	149,107	163,657	183,657	183,657	183,657	183,657										
2010	-	-	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-	-	-															
2015	-	53,789	116,564	142,401	155,510	155,510	155,510	155,510																
2016	-	-	-	-	-	-	-																	
2017	43,180	53,255	59,359	59,359	59,359	59,359																		
2018	-	-	-	-	-																			
2019	-	-	-	-																				
2020	-	-	42,917																					
2021	-	-																						
2022	-																							

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,665,560	1,481,747	1,665,560	183,813	-	183,813
2000	5,640,481	4,577,720	5,640,481	1,062,761	-	1,062,761
2001	2,121,367	1,495,557	2,121,367	625,810	-	625,810
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,074,609	1,937,099	2,074,609	137,511	-	137,511
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	55,268	51,787	51,787	-	3,481	3,481
2009	196,002	183,657	183,657	-	12,346	12,346
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	218,627	155,510	155,510	-	63,117	63,117
2016	-	-	-	-	-	-
2017	88,583	59,359	59,359	-	29,224	29,224
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	197,752	42,917	121,700	78,783	76,052	154,835
2021	61,063	-	32,000	32,000	29,063	61,063
2022	-	-	-	-	-	-
TOTAL	14,114,529	11,780,568	13,901,245	2,120,678	213,283	2,333,961

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1995	1.000	100000.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	0.805	1.291	1.096	0.885	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.231	1.000	1.000	2.333	2.000	1.000	0.286			1.079	1.260	1.000	1.000	1.000	1.505	1.058	1.000	1.108	1.000	1.000	0.913	1.000	1.000	1.000	1.000	1.000
1997																										1.000
1998	1.062	2.451	1.173	0.998	1.460	1.000	0.738	0.814	0.872	1.015	1.047	0.920	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.110	1.000	0.940	1.000	1.000	1.000
1999	2.490	0.658	1.022	1.103	1.251	0.943	1.026	1.041	1.044	0.966	1.024	1.015	1.000	0.964	1.015	1.000	1.023	1.012	1.055	1.000	0.990	1.121	1.000	1.000	1.000	1.000
2000	1.181	1.060	1.072	1.020	0.993	1.022	1.108	1.020	1.244	1.054	0.991	1.172	0.992	0.996	1.049	1.007	1.043	0.983	0.981	1.069	1.000	1.000	1.000	1.000	1.000	1.000
2001	3.476	1.429	0.813	0.967	0.918	1.055	1.079	1.009	1.081	1.132	0.972	1.016	1.008	0.934	1.172	0.987	0.990	1.069	1.009	1.100	1.102	1.000	1.000	1.000	1.000	1.000
2002	3.261	0.902	0.742	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.549	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.004	1.185	1.031	1.000	1.114	1.298	1.128	0.958	1.150	1.051	1.000	0.832	1.147	1.000	1.000	1.011	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.860	3.207	0.981	1.000	0.999	1.000	1.211	0.977	1.540	1.142	1.031	1.043	1.000	1.022	1.120	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.922	0.888	1.000	0.974	1.119	1.000	1.367	0.872	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006																	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	0.860	1.000	0.485	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	0.577	1.000	0.898	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.000	2.119	1.000	1.000	1.000	1.346	1.260	1.000	1.000	1.022	1.000	1.000	1.000	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010													1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011												1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012											1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013										1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014									1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	195789.070	1.000	1.000	0.794	1.000	1.000	1.000	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016							1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.314	0.904	1.000	1.000	1.000	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018					1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019				1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	121700.000	1.000	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	32000.000	1.174	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.599	1.174	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	119,916	109,456	109,456	109,456	109,456	109,456
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	635,093	705,092	705,092	662,628	662,628	662,628
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,405,690	1,422,494	1,500,783	1,500,783	1,486,070	1,665,560	1,665,560	1,665,560	1,665,560
2000	2,102,118	2,481,719	2,630,091	2,819,603	2,876,383	2,857,666	2,921,119	3,236,351	3,301,717	4,107,207	4,330,460	4,291,057	5,028,326	4,988,326	4,966,652	5,210,073	5,247,171	5,471,620	5,376,625	5,275,990	5,639,825	5,639,825	5,640,481	5,640,481	5,640,481	5,640,481
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	1,659,746	1,638,565	1,621,524	1,733,336	1,748,983	1,924,282	2,121,367	2,121,367	2,121,367	2,121,367	2,121,367
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493
2003	250,003	250,882	297,387	306,532	306,532	341,531	443,402	500,006	478,961	550,916	578,916	578,916	481,483	552,376	552,376	552,376	558,548	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	1,818,773	1,818,773	1,859,341	2,081,628	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	55,268	55,268	55,268	55,268	55,268	55,268	55,268	55,268	55,268	55,268	55,268
2009	50,001	50,001	105,943	105,943	105,943	105,943	142,619	179,761	179,761	179,722	183,657	183,657	183,657	183,657	183,657	196,002	196,002	196,002	196,002	196,002	196,002	196,002	196,002	196,002	196,002	196,002
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	1	195,789	195,789	195,789	155,510	155,510	155,510	155,510	155,510	180,822	191,473	192,330	204,467	204,857	204,857	218,627	218,627	218,627	218,627	218,627	218,627	218,627	218,627	218,627	218,627	218,627
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	50,000	65,680	59,359	59,359	59,359	59,359	60,631	63,010	63,010	73,265	77,581	77,928	82,846	83,004	83,004	88,583	88,583	88,583	88,583	88,583	88,583	88,583	88,583	88,583	88,583	88,583
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	1	121,700	121,700	121,700	123,089	132,513	135,352	140,662	140,662	163,557	173,191	173,966	184,944	185,296	185,296	197,752	197,752	197,752	197,752	197,752	197,752	197,752	197,752	197,752	197,752	197,752
2021	1	32,000	37,579	37,579	38,008	40,918	41,795	43,435	43,435	50,504	53,479	53,718	57,108	57,217	57,217	61,063	61,063	61,063	61,063	61,063	61,063	61,063	61,063	61,063	61,063	61,063
2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Selection of Loss Development Factors

	Development Period in Months																							
RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300
1994																								
1995	1.000	100000.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	0.805	1.291	1.096	0.885	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.231	1.000	1.000	2.333	2.000	1.000	0.286			1.079	1.260	1.000	1.000	1.000	1.505	1.058	1.000	1.108	1.000	1.000	0.913	1.000	1.000	1.000
1997																								
1998	1.062	2.451	1.173	0.998	1.460	1.000	0.738	0.814	0.872	1.015	1.047	0.920	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.110	1.000	0.940	1.000
1999	2.490	0.658	1.022	1.103	1.251	0.943	1.026	1.041	1.044	0.966	1.024	1.015	1.000	0.964	1.015	1.000	1.023	1.012	1.055	1.000	0.990	1.121	1.000	
2000	1.181	1.060	1.072	1.020	0.993	1.022	1.108	1.020	1.244	1.054	0.991	1.172	0.992	0.996	1.049	1.007	1.043	0.983	0.981	1.069	1.000	1.000		
2001	3.476	1.429	0.813	0.967	0.918	1.055	1.079	1.009	1.081	1.132	0.972	1.016	1.008	0.934	1.172	0.987	0.990	1.069	1.009	1.100	1.102			
2002	3.261	0.902	0.742	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.549	1.000	1.000	1.000	1.000				
2003	1.004	1.185	1.031	1.000	1.114	1.298	1.128	0.958	1.150	1.051	1.000	0.832	1.147	1.000	1.000	1.011	0.994	1.000	1.000					
2004	0.860	3.207	0.981	1.000	0.999	1.000	1.211	0.977	1.540	1.142	1.031	1.043	1.000	1.022	1.120	0.997	1.000	1.000						
2005	0.922	0.888	1.000	0.974	1.119	1.000	1.367	0.872	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
2006																								
2007	0.860	1.000	0.485	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
2008	0.577	1.000	0.898	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000										
2009	1.000	2.119	1.000	1.000	1.000	1.346	1.260	1.000	1.000	1.022	1.000	1.000	1.000											
2010																								
2011																								
2012																								
2013																								
2014																								
2015	195789.070	1.000	1.000	0.794	1.000	1.000	1.000																	
2016																								
2017	1.314	0.904	1.000	1.000	1.000																			
2018																								
2019																								
2020	121700.000	1.000																						
2021	32000.000																							
VOL WTD 3	76850.000	1.000	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	0.997	0.999	1.000	1.006	1.074	1.020	1.023	0.982	1.000
VOL WTD 5	4.387	0.966	1.000	0.842	1.000	1.000	1.000	NA	1.000	1.017	1.000	1.000	1.000	1.020	1.088	0.937	0.996	1.002	0.999	1.057	1.026	1.023	0.984	1.000
VOL WTD ALL	1.599	1.174	0.981	1.011	1.077	1.021	1.039	0.989	1.163	1.059	1.004	1.063	1.002	0.990	1.067	0.984	1.020	1.004	0.999	1.056	1.024	1.022	0.984	1.000
ARITH 3	76850.000	1.000	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	0.998	0.998	1.000	1.003	1.056	1.031	1.040	0.970	1.000
ARITH 5	51233.771	0.952	1.000	0.897	1.000	1.000	1.000	NA	1.000	1.011	1.000	1.000	1.000	1.006	1.030	0.889	0.997	1.010	1.009	1.034	1.019	1.024	0.985	1.000
ARITH ALL	20559.312	6251.238	0.948	1.079	1.124	1.048	1.015	0.974	1.078	1.041	1.025	1.000	0.996	1.016	1.087	0.949	1.004	1.019	1.006	1.024	1.019	1.024	0.985	1.000
5 YR HI LO	32000.000	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	0.998	0.998	1.000	1.003	1.023	1.051	1.000	1.000	NA
7 YR HI LO	76850.000	1.000	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.030	0.998	1.003	1.002	1.002	1.017	1.031	1.000	1.000	NA
ALL YR HI LO	10979.858	1.226	0.963	1.005	1.078	1.034	1.050	0.982	1.058	1.035	1.009	0.999	1.001	0.994	1.044	1.000	1.002	1.013	1.002	1.017	1.031	1.000	1.000	NA
SELECTED	1.599	1.174	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Incurred Losses

	Development in Months																								
RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	119,916	109,456	109,456	109,456	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	635,093	705,092	705,092	662,628	
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,405,690	1,422,494	1,500,783	1,500,783	1,486,070	1,665,560	1,665,560	
2000	2,102,118	2,481,719	2,630,091	2,819,603	2,876,383	2,857,666	2,921,119	3,236,351	3,301,717	4,107,207	4,330,460	4,291,057	5,028,326	4,988,326	4,966,652	5,210,073	5,247,171	5,471,620	5,376,625	5,275,990	5,639,825	5,639,825	5,640,481		
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	1,659,746	1,638,565	1,621,524	1,733,336	1,748,983	1,924,282	2,121,367			
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	239,493	239,493	239,493	239,493	239,493				
2003	250,003	250,882	297,387	306,532	306,532	341,531	443,402	500,006	478,961	550,916	578,916	578,916	481,483	552,376	552,376	552,376	558,548	555,224	555,224	555,224					
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	1,818,773	1,818,773	1,859,341	2,081,628	2,074,609	2,074,609	2,074,609						
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838							
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750									
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787										
2009	50,001	50,001	105,943	105,943	105,943	105,943	142,619	179,761	179,761	179,722	183,657	183,657	183,657	183,657											
2010	-	-	-	-	-	-	-	-	-	-	-	-	-												
2011	-	-	-	-	-	-	-	-	-	-	-	-													
2012	-	-	-	-	-	-	-	-	-	-	-														
2013	-	-	-	-	-	-	-	-	-	-															
2014	-	-	-	-	-	-	-	-	-																
2015	1	195,789	195,789	195,789	155,510	155,510	155,510	155,510																	
2016	-	-	-	-	-	-	-																		
2017	50,000	65,680	59,359	59,359	59,359	59,359																			
2018	-	-	-	-	-																				
2019	-	-	-	-																					
2020	1	121,700	121,700																						
2021	1	32,000																							
2022	-																								

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POTENTIAL SITES	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	51,787	55,268	53,527	2,055	26
2009	183,657	196,002	189,829	2,051	93
2010	-	-	-	2,049	-
2011	-	-	-	2,044	-
2012	-	-	-	2,040	-
2013	-	-	-	2,040	-
2014	-	-	-	2,039	-
2015	155,510	218,627	187,069	2,038	92
2016	-	-	-	2,038	-
2017	59,359	88,583	73,971	2,037	36
2018	-	-	-	2,036	-
2019	-	-	-	2,036	-
2020	171,362	197,752	184,557	2,035	91
2021	32,000	61,063	46,532	2,034	23
2022	-	-	-	2,034	-
TOTAL	653,675	817,296	735,486	30,606	24

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Paid Bornhuetter-Ferguson Method

(1) RY	(2) POTENTIAL SITES	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT UNPAID	(8) EXPECTED UNPAID	(9) PAID LOSSES	(10) INDICATED ULTIMATE	(11) INCURRED LOSSES	(12) IBNR RESERVE	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,055	26	34	23	46,425	17.5%	8,132	51,787	59,919	51,787	8,132	-	29
2009	2,051	93	120	23	47,261	20.5%	9,698	183,657	193,355	183,657	9,698	-	94
2010	2,049	-	-	24	48,159	23.4%	11,248	-	11,248	-	11,248	-	5
2011	2,044	-	-	24	49,003	26.9%	13,198	-	13,198	-	13,198	-	6
2012	2,040	-	-	24	49,885	36.7%	18,320	-	18,320	-	18,320	-	9
2013	2,040	-	-	25	50,883	42.6%	21,685	-	21,685	-	21,685	-	11
2014	2,039	-	-	25	51,875	49.7%	25,776	-	25,776	-	25,776	-	13
2015	2,038	92	105	26	52,886	55.7%	29,436	155,510	184,946	155,510	29,436	-	91
2016	2,038	-	-	26	53,944	60.9%	32,827	-	32,827	-	32,827	-	16
2017	2,037	36	40	27	54,996	64.3%	35,362	59,359	94,721	59,359	35,362	-	47
2018	2,036	-	-	28	56,068	68.8%	38,556	-	38,556	-	38,556	-	19
2019	2,036	-	-	28	57,190	73.2%	41,856	-	41,856	-	41,856	-	21
2020	2,035	91	94	29	58,305	82.5%	48,122	42,917	91,039	121,700	(30,661)	78,783	45
2021	2,034	23	23	29	59,442	90.4%	53,751	-	53,751	32,000	21,751	32,000	26
2022	2,034	-	-	30	60,631	90.4%	54,826	-	54,826	-	54,826	-	27
TOTAL	30,606				796,952		442,793	493,230	936,023	604,013	332,010	110,783	31

Pure Premium Selection	
3-Year Average x Latest	39
5-Year Average x Latest	32
All Year Average x Latest	30
Selected Pure Premium	30

Trend = 1.020

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2022
Remedial AST
Incurred Bornhuetter-Ferguson Method

(1) RY	(2) POTENTIAL SITES	(3) PROJECTED PURE PREM	(4) TRENDED PURE PREM	(5) DETRENDED PURE PREM	(6) EXPECTED LOSSES	(7) PERCENT IBNR	(8) EXPECTED IBNR	(9) INCURRED LOSSES	(10) INDICATED ULTIMATE	(11) PAID LOSSES	(12) UNPAID LOSS	(13) CASE RESERVE	(14) ULTIMATE PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,055	26	34	23	46,425	6.3%	2,924	51,787	54,711	51,787	2,924	-	27
2009	2,051	93	120	23	47,261	6.5%	3,061	183,657	186,718	183,657	3,061	-	91
2010	2,049	-	-	24	48,159	12.0%	5,793	-	5,793	-	5,793	-	3
2011	2,044	-	-	24	49,003	12.4%	6,086	-	6,086	-	6,086	-	3
2012	2,040	-	-	24	49,885	17.3%	8,626	-	8,626	-	8,626	-	4
2013	2,040	-	-	25	50,883	28.9%	14,690	-	14,690	-	14,690	-	7
2014	2,039	-	-	25	51,875	28.9%	14,976	-	14,976	-	14,976	-	7
2015	2,038	92	105	26	52,886	31.6%	16,688	155,510	172,199	155,510	16,688	-	84
2016	2,038	-	-	26	53,944	33.0%	17,797	-	17,797	-	17,797	-	9
2017	2,037	36	40	27	54,996	37.8%	20,764	59,359	80,123	59,359	20,764	-	39
2018	2,036	-	-	28	56,068	38.5%	21,563	-	21,563	-	21,563	-	11
2019	2,036	-	-	28	57,190	38.5%	21,994	-	21,994	-	21,994	-	11
2020	2,035	91	94	29	58,305	47.6%	27,750	121,700	149,450	42,917	106,533	78,783	73
2021	2,034	23	23	29	59,442	67.2%	39,962	32,000	71,962	-	71,962	32,000	35
2022	2,034	-	-	30	60,631	67.2%	40,761	-	40,761	-	40,761	-	20
TOTAL	30,606				796,952		263,436	604,013	867,449	493,230	374,219	110,783	28

Pure Premium Selection	
3-Year Average x Latest	39
5-Year Average x Latest	32
All Year Average x Latest	30
Selected Pure Premium	30

Trend = 1.020